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FAMILY INTERACTION IN EARLY ADOLESCENCE: ASSESSING CONTRIBUTIONS TO EARLY ADOLESCENTS' SOCIO-EMOTIONAL ADJUSTMENT

BY

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DISSERTATION

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Abstract

Family relationships are an important influence on early adolescents' socio-emotional adjustment, although we know less about how family-level relationship quality influences development specifically. To help address this gap in the literature, I used data from a subsample of two-parent families from the NICHD Study of Early Child Care and Youth Development who had completed a family interaction task in 5th grade (N = 605) to assess the associations between family-level interaction quality at 5th grade and early adolescent socio-emotional adjustment in 6th grade, controlling for 5th grade adjustment. Socio-emotional adjustment was assessed using three measures: internalizing problems, externalizing problems and social competence. Structural equation modeling was used in analyses, as family interaction quality was examined as latent variables of positive and negative interaction quality. Moderation analyses were also conducted to examine whether the following contextual or individual variables moderated the family-adjustment associations: (a) switching schools between 5th and 6th grade, (b) child emotional reactivity, and (c) child gender. Finally, models with significant family interaction to adjustment associations were re-computed including maternal and paternal sensitivity to test the distinctiveness of the family-level interaction associations from other important family relationships (e.g., parent-child relationship).

Only limited evidence that negative family interaction quality was associated with 6th grade adjustment emerged in analyses. Positive family interaction, however, made significant contributions to 6th grade adjustment when examining school switch and child gender as moderators. Social competence in particular was influenced by positive family interaction: greater positive family interaction quality in 5th grade predicted greater social competence for students who switched schools, as well as for boys specifically. Some, but not all, associations remained significant when accounting for parental sensitivity, offering modest support that these are distinct contributions from those that dyadic parent-child relationship quality makes to early adolescent socio-emotional adjustment. Results highlight the importance of examining both positive and negative dimensions of family interaction in the same study, as well the benefit of studying potential moderators of family-adjustment associations.

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Chapter One: Introduction

Early adolescence is a period of significant transition and change intrapersonally and interpersonally. Significant biological, emotional and psychological changes occur, and there are significant shifts in important social relationships, as peers increasingly take on new importance and relationships with family shift as a result of new expectations that come with age and maturation (e.g., increased autonomy and independence; Collins & Steinberg, 2006). Typically this is also a period of new experiences with schooling, as children shift into new school environments (i.e., middle school) that are often less structured and nurturing than earlier schooling experiences (Eccles, 2004; Eccles et al., 1993). Navigating all of these potentially difficult changes may pose a particular challenge for early adolescents. Indeed, this age period is often identified as one of particular risk for starting on long-term negative developmental trajectories, such as academic failure, aggression and conduct problems, and the development of significant mental health issues, particularly depression (Allen & Sheeber, 2008; Eccles, Lord, & Buchanan, 1996; Eccles et al., 1993; Gutman & Eccles, 2007; Simmons & Blyth, 1987; Yap, Allen, & Sheeber, 2007). Given the importance of this age period to subsequent development, it is essential to understand what factors are associated with early adolescent adjustment. Such knowledge will enable us to better identify possible targets of intervention, including helping to identify children who may be at particular risk during this developmental period.

Although a variety of relational and contextual factors outside the family are associated with development during this period, family factors still remain an important contributor to development and functioning for early adolescents (Clarke-Stewart & Dunn, 2006; Collins & Steinberg, 2006; Steinberg & Silk, 2002; Yap et al., 2007). However, much of what we know about the influence of 'the family' on development is actually about the influence of parents and parenting, with relatively less known about how other important family relationships and family functioning affect development at this time. However, family systems theory (S. Minuchin, 1974) points to the necessity of examining the influence of multiple family factors to best understand the influence of the family on individual development (P. Minuchin, 1985), as no one family factor (e.g., parenting) fully captures these effects. Thus, more work needs to be done to examine how other aspects of family functioning and relationships influence early adolescent development as well.

To help address this gap in the literature on family relationships during the early adolescent period, I used observations of family-level interactions to assess whether the quality of family interactions influences early adolescent socio-emotional adjustment. Family systems theory theorizes that larger (or full) family group interactions are a distinct and potentially important family factor to consider in regards to child development, beyond the effects of parent-child dyadic relationship quality. In this dissertation study, I therefore examined the extent to which the quality of family-level interactions contributes to early adolescent socio-emotional adjustment, specifically focusing on three indicators of adjustment: internalizing problems, externalizing problems, and social competence. To address this overarching aim, I used a subsample of participants from the NICHD Early Child Care and Youth Development Study who completed a family interaction task in their 5th grade year and were followed into their 6th year in order to examine the associations between family interaction quality and early adolescent socio-emotional adjustment.

Chapter Two: Theoretical Framework and Literature Review

Family Systems Theory

Family systems theory posits that families are a type of system and, as a system, follow in form and function a set of general principles key to all systems (Broderick, 1993; S. Minuchin, 1974). Family systems theorists have adapted and extended these systems principles to the family context. Given the need to understand individuals in relation to family relationships, calls to integrate family systems theory into developmental work have been made, both for general child developmentalists (most notably P. Minuchin, 1985 and Cox & Paley, 1997) and more specifically for developmental psychopathologists (Cowan & Cowan, 2006; Davies & Cicchetti, 2004). These calls (particularly P. Minuchin, 1985 and Cox & Paley, 1997) have typically highlighted certain key principles from family systems theory that may be particularly useful to integrate into developmental research on children and families. Of these principles, below are the principles most relevant to the current dissertation study:

a) Families (i.e., the family system) are comprised of multiple interacting subsystems of varying size and complexity that are fundamentally interdependent. Subsystems of the family include individuals and their own internal system processes, as well as various relational systems ranging in size and complexity from dyads to many-person groups. The number and complexity of the subsystems depends on family structure (e.g., number of family members).

b) Each relational subsystem has ways of functioning (e.g., interaction styles) that *uniquely emerges when the individuals comprising that subsystem are together*. Subsystem functioning is thus not synonymous with the functioning of other subsystems or with the functioning of the whole family system. Although more complex subsystems may involve smaller units (like individuals and dyads), one cannot only look at the smaller units to understand a higher-level subsystem functioning. For instance, understanding the mother-father-child triad could not be achieved by only examining the behavior of mother-child and father-child dyads, because the triadic context requires new kinds of behavior (e.g., communication with multiple social partners simultaneously) that cannot be observed at the individual or dyadic level. One could, however, assess how the functioning of these smaller relational subsystems relates to and influences the unique

functioning of the triad. Thus, to understand the functioning of a (sub)system, the (sub)system must be examined in its own right.

c) Functioning in one subsystem (either individual or relational) in the family is important to the functioning of all other systems in the family. Individual child functioning therefore is interdependent with the functioning of other members of the family and the relative functioning of all relational subsystems in the family, both those that the individual child is directly involved in and those the child is not (Cox & Paley, 1997; P. Minuchin, 1985).

d) The family system and its subsystems are all governed by opposing systems forces instantiating change and those maintaining homeostasis. Homeostatic forces help account for the establishment of typically enacted interaction patterns within and across subsystems of a family, and the tendency to preserve these patterns of interaction across time (Broderick, 1993).

Overall, family systems theory draws attention to the ways that individual children are embedded in a network of inter-related relationships within their family and attention needs to be paid to the nature of these family relationships when examining individual child development in the context of the family (Cox & Paley, 1997; P. Minuchin, 1985). Specifically, family systems theory points to the importance of understanding how each relationship subsystem contributes to individual development distinctly, and the need to more fully examine family processes beyond – or in combination – with the traditional focus on parent-child relationships. I turn next to a discussion of what we do (and do not) know about early adolescent development in the context of the family.

Family (Sub)Systems and Early Adolescent Development

As each relational subsystem including the child involves unique interactional dynamics, each may influence early adolescent socio-emotional development differently. Below I highlight key findings from literature on parent-child dyads, the parent-child triad and the larger-family (or whole family) group, as these are most relevant to the current study focus. Additionally, as I focus on the early adolescent period and observational research in my own analyses, the review of the literature below focuses on this age period and methodology primarily, and focuses on the key socio-emotional outcomes used in the current study (i.e., internalizing problems, externalizing problems and social competence).

Parent-child subsystem(s). By far the most examined subsystem in the family is the parent-child subsystem, either focusing on a single parent – typically the mother – or both mother- and father-child subsystems. A substantial body of literature has examined parent-child relationship quality as it relates to social competence and psychopathology risk during adolescence (for reviews, see Bornstein, Jager & Steinberg, 2013; Collins & Laursen, 2004; Collins & Steinberg, 2006; Peterson & Bush, 2015). Research suggests that parent-child relationships characterized by parental supportiveness, responsiveness and warmth are associated with better adolescent adjustment, such as greater social competence and less internalizing and/or externalizing behavior, whereas parent-child relationships characterized by low support and high conflict and/or hostility are associated with worse adjustment outcomes over time (Bornstein, Jager & Steinberg, 2013; Collins & Laursen, 2004; Collins & Steinberg, 2006; Peterson & Bush, 2015). Notably, shifts in the parent-child relationship occur during adolescence, as new developmental goals become important. Given the growing importance of autonomy, independence, and identity formation during adolescence, aspects of parent-child relationships that help or hinder these processes increasingly become important (Allen, Hauser, Eickholt, Bell, & O'Conner, 1994; Collins & Steinberg, 2006; Steinberg & Silk, 2002). Thus, parent-child relationships that do not support child autonomy, such as those characterized by high degrees of negation of child opinion/selfhood and over-control of child behavior have been related to subsequent adjustment difficulties (for instance, depression; Collins & Steinberg, 2006; Restifo & Bögels, 2009).

Early adolescence, which marks a beginning of these shifts in developmental goals and attendant shifts in parent-child relationships, may be particularly important to later adjustment. There is evidence that parent-child conflict peaks, or at least increases significantly, in early adolescence (Laursen & Collins, 2009; Laursen, Coy & Collins, 1998). Relationship dynamics may be challenging during the early adolescent period because early adolescents may have growing expectations of autonomy and more equal power in the family, which may not yet match those parents hold (Peterson & Bush, 2015). Additionally, there may be a somewhat normative decline in closeness over time, although most children remain close to family during adolescence and continue to spend time with and seek parental support on important issues (Laursen & Collins, 2009; Peterson & Bush, 2015; Wang, Peterson, & Morphey, 2007). However, not all parents and children experience the same degree of conflict or decline in

closeness, and it may be that children who experience less positive and more negative relationships with parents early in adolescence are at most risk for adjustment difficulties. Importantly, parental behavior early in adolescence has been related to subsequent parent-child relationship quality and psychopathology risk, such that more negative relationships (i.e., low warmth, high negativity) early in adolescence presage the decline of relationship quality (i.e., less supportiveness and more negativity; Laursen, DeLay, & Adams, 2010) and increased risk of depression later in adolescence (Rueter, Scaramella, Wallace, & Conger, 1999; Schwartz et al., 2014). Thus, early adolescence appears to be an important time for the development of the parent-child relationship and its subsequent impact on adolescent adjustment.

Triadic subsystem (parents and child). Given the nature of interaction in families (i.e., often not dyadic), understanding larger family group interactions is also critical to understand the influence of the family on early adolescent development. To this end, research has focused on the parent-child triad as one indicator of these larger family dynamics. Notably, this subsystem is more complex than dyadic systems in that it is comprised of multiple relational subsystems and, thus, highly influenced by the dyads that comprise it (e.g. mother-child, father-child and mother-father). Interacting in a triadic context also requires a different behavioral repertoire than the dyadic context, as all partners must manage interaction with multiple others, and individual behavior tends to differ across these relational contexts. Although limited in number and typically conducted with young children, studies that have examined both dyadic (parent-child) and triadic interactions do suggest that the behavior of parents and children differ by context (Buhrmester, Camparo, Christensen, Gonzalez, & Hinshaw, 1992; de Mendonça, Cossette, Strayer, & Gravel, 2011; Lindsey & Caldera, 2006). For instance, mothers have been found to be less sensitive and involved with their child in triadic interactions than during dyadic parent-child interactions (Lindsey & Caldera, 2006). Additionally, certain types of relational behavior, such as formation of alliances among triad members, are not readily observable in dyadic contexts but may have important effects on the functioning of the family and its members (Davis, Hops, Alpert, & Sheeber, 1998; S. Minuchin, 1974).

Research examining triadic interactions suggests that its functional features make important contributions to early adolescent functioning, particularly with respect to the development of depression and problem behaviors (i.e., aggression, conduct problems; Allen, Hauser, Eickholt, Bell, & O'Conner, 1994; Benson & Buehler, 2012; Cummings, Koss, &

Davies, 2015; Davis, Hops, Alpert, & Sheeber, 1998; Demby, Riggs, & Kaminski, 2017). This research suggests that certain qualities of family interaction – namely negative aspects such as hostility and conflict – observed during the early adolescent period play a particularly detrimental role in later functioning during adolescence. In one of the few studies to examine changes in both observed triadic relationship quality and adolescent development over time (starting in 6th grade), Benson and Buehler (2012) found that initial triadic hostility predicted subsequent increases in adolescent aggression, both when examined alone and in combination with family warmth and deviant peer affiliation. Interestingly, they found limited evidence that triadic warmth was associated with lower levels of aggression concurrently or over time, and it was not a significant predictor when family hostility was accounted for in models. Taken together, these findings suggest that family conflict specifically may be important to the family-externalizing association. In another study, conflict during triadic interaction observed in 7th grade was associated with later increases in depression and anxiety assessed in 9th grade, in part through its negative effect on the degree of security the adolescent felt within the family (Cummings, Koss, & Davies, 2015). Thus, some evidence suggests that negative interactions such as family conflict, at least at a triadic level, make significant contributions to adolescent internalizing and externalizing problems over time.

Given the importance of healthy boundaries (i.e., lack of triangulation and positive, balanced levels of engagement across subsystems) in the mother-father-child triad, other literature has examined whether boundary typology in the triad is associated with adjustment in the late middle childhood/early adolescent period. One study found that children in more balanced family types (i.e., cohesive, no triangulation, balanced interactions) had fewer internalizing and externalizing problems than those in unbalanced family types (Lindahl, Malik, Kaczynski, & Simons, 2004). Another study examining boundary disturbances found similar results, although also found gender differences, such that girls showed worse outcomes when experiencing a disengaged triadic environment and boys showed worse outcomes when they experienced dyadic alliances within the triad (Lindahl, Bregman, & Malik, 2012). However, this research was cross-sectional, so it is unclear whether these associations would emerge longitudinally.

Notably, studies have focused on internalizing and externalizing as outcomes, and we know little about whether factors related to triadic interaction are associated with positive

developmental outcomes (e.g., social competence) during this age period. Additionally, one key issue in generalizing these findings is that parent-child triadic interaction may not fully reflect family interaction patterns or functioning in families that include other key family members (e.g., siblings, grandparents in multi-generational homes). Siblings and other important family members likely influence and change the dynamics of family interactions in important ways, and these larger family group interactions may be important to examine as predictors of adolescent outcomes as they may better reflect the family interaction environment the early adolescent typically encounters. To this end, research has examined the associations between larger family group processes and early adolescent adjustment, although, as I will indicate below, more research in this area is warranted.

Family-level interaction. Families can also be assessed for how they function and interact when in larger groups (e.g., parents and several children) or when all members are together (i.e., as a whole family). Notably, these interactions are more complex than triadic interaction in non-triadic families, as all relationship dynamics involving additional members enter into the interaction dynamics of the group (e.g., with one sibling added to triad, sibling-sibling, sibling-mother, sibling-father relationships all enter into interaction dynamics). Assessment of these kinds of family interactions should provide important and unique information about a family that is not fully conveyed through other means, such as the general affective and relational climate within the family and the functional dynamics of interaction when key (or all) members are present. These sorts of family-wide interaction patterns and higher family-level constructs, such as family cohesion (i.e., supportiveness, cooperation and involvement as a family), are not fully accessible when focusing only on constituent subsystems, such as dyads and/or triads. However, getting observations of larger family groups or the whole family has proven relatively difficult (Lindhal, 2001), and thus researchers often utilize self-report measures of these factors instead. This has been true within the literature about early adolescents and their families as well. Because it may be important to consider methodology in assessing past research, I highlight findings by methodology (i.e., reported or observed) below.

Reported family functioning/interaction. Parent and child self-reports of family-level functioning have been widely used, and much of what we know about family functioning-adjustment links is through this work. These measures typically ask parents and/or children to report on how the whole family interacts and relates to each other generally, such as the family's

general style of communication, degree of supportiveness and involvement with one another, degree of conflict, emotional tone etc. – although family measures may also ask about other aspects of the family that do not directly map on to assessing interaction patterns (e.g., emphasis on certain family values). Below I highlight results from studies that used measures of family functioning that most closely index family interaction patterns, as these parallel the family measure used in the current study (i.e., family's general style of interacting).

There is evidence that family functioning in early adolescence contributes to multiple socio-emotional outcomes longitudinally, including several social-adjustment related outcomes. Research examining 5th grade family functioning and its association with later adjustment in middle school (7th grade), found that family emotional expressiveness was positively associated with children's later self-concepts and that greater family-level supportiveness was associated with girls' higher self-esteem, boys lower level of externalizing, and for both boys and girls, higher academic achievement and greater popularity (Bronstein, Fitzgerald, Briones, Pieniadz & D'Ari, 1993; Bronstein et al., 1996). Similarly, family functioning (i.e., cohesion and adaptability) assessed in 4th or 5th grade was found to be associated with children's sense of social competence and self-worth at the initial time point and a year later (Gauze, Bukowski, Aquan-Asee & Sippola, 1996). Children from low functioning families were found to be more susceptible to the effects having friendships had on their self-concept, concurrently (e.g., not having close friend, lower self-concept initially) and longitudinally (e.g., increased if gained friend, decreased if lost friend) – whereas children from high functioning families appeared to be buffered from these effects. Taken together, these results suggest that family functioning plays an important role in buffering or creating risk for children in terms of their self-concept and, therefore, emotional and social functioning. Other work found that better family functioning in early adolescence was predictive of more prosocial behavior and less child aggression later in adolescence, even when accounting for the influence of parenting quality and mother risk factors (Crandall, Ghazarian, Day & Riley, 2015) – again supporting the idea that there are associations between family functioning and multiple aspects of socio-emotional functioning.

Studies focusing specifically on emotional or behavior problems further suggest there are important links between family functioning and these outcomes. Longitudinal associations between family functioning in early adolescence and later depression have been found, such that youth from more positively functioning families (e.g., higher cohesion, and/or less conflict)

exhibit less depression later in adolescence (Freed, Rubenstein, Daryanani, Olino, & Alloy, 2016; Kelly et al., 2016; Queen, Stewart, Ehrenreich-May, & Pincus, 2013; White, Shelton, & Elgar, 2014). Other research has indicated that family functioning during late childhood/early adolescence may be important to trajectories of externalizing problems. Family functioning was found to moderate the risk for subsequent aggression, such that experiencing better family functioning (i.e., less conflict, more cohesion) was associated with less aggression for those children who were initially at risk for subsequent aggression (Andreas & Watson, 2009). Additionally, experiencing a low quality family environment was associated with increases in aggression across time even for children with less initial risk for aggression (Andreas & Watson, 2009), suggesting that family environment plays an important role in the development of externalizing problems even for those who are not generally considered at risk. Notably, one study of early adolescents indicated that even when accounting for parenting quality and parent-child conflict, having a higher quality family environment (e.g., more family cohesion and adaptability) was still significantly associated with fewer internalizing and externalizing problems, although this was found concurrently rather than longitudinally (McKinney & Renk, 2011) – and not all studies have found effects to remain when accounting for parent-child relationship factors (Deković, Janssens, & Van As, 2003).

Intervention work that has targeted family functioning during the beginning of middle school offers more robust evidence for the association between family conflict and youth adjustment across the middle school years, at least based on reports of family conflict. The Family Check-Up (Dishion & Kavanaugh, 2003; Dishion & Stormshak, 2007) is an intervention program developed to target at risk children and their families through the school setting during the 6th grade year with the aim of giving support (including feedback on observations of family behavior) to parents/families to help them with family interactions, including communication and management practices. In comparisons between families who received the intervention in 6th grade and those who did not, research found that participation-related declines in family-conflict throughout the middle school years were associated with decreased depression across the same time period (Fosco, Van Ryzin, Connell, & Stormshak, 2016) and less antisocial behavior in in 9th grade (Van Ryzin & Dishion, 2012). As with results from the triadic interaction literature, research suggests that family-conflict may be a risk factor for subsequent negative outcomes, although this set of studies did not examine the possible influence of increases in positive family

functioning as a mechanism of influence as well, so it is possible these elements are both important to consider.

Observational assessment of family interaction. Studies that include observations of larger family groups or whole-family interactions are rare within the literature on early adolescents. Of the few studies that have observed larger-than-triadic family interactions during the adolescent period, findings suggest important associations between family-level processes observed during these interactions and adolescent development. For instance, Richmond and Stocker (2006) examined the association between family functioning and concurrent adolescent externalizing symptoms. Families (mothers, fathers and two adolescent children) were observed interacting in a series of tasks designed to elicit both positive and negative interactions among family members. The authors reported an association between observed family cohesiveness and concurrent adolescent externalizing problems, such that families with greater cohesiveness had adolescents with fewer externalizing problems. Most notably, family cohesiveness remained a significant predictor of externalizing problems in models controlling for either mother-child or father-child hostility (Richmond & Stocker, 2006).

Although not directly examining child outcomes, one longitudinal investigation of larger family group (i.e., parents, study child and sibling) interaction from early to mid- adolescence did find that family interaction style in early adolescence was associated with later parent-child relationship quality and later family functioning (Rueter & Conger, 1995). Notably, this study examined both positive (i.e., warm, supportive) and negative (i.e., hostile) aspects of family interactions, although examined them separately in analyses. Negative family interactions early in adolescence were associated with later increases in parent-child conflict during mid-adolescence, and families who had high initial negative interactions tended to show increases in negative interactions over time (i.e., more hostility, less effective family problem solving). Positive family interaction was predictive of later positive interactions, and this in turn was associated with less parent-child conflict in mid-adolescence (Rueter & Conger, 1995). Given the evidence that parent-child conflict is associated with adjustment difficulties (e.g., depression; Hughes & Gullone, 2008; Restifo & Bögels, 2009), this does suggest that there could be important longitudinal associations between specific qualities of family interaction in early adolescence and later adjustment outcomes – although further study is needed to explicitly examine these associations.

General implications. Overall, research examining interactions and functioning of family groups larger than the dyad (i.e., triad, larger group, whole family) have found important associations between these aspects of the family and adolescent adjustment, such that poorer quality family relationships (e.g., low warmth/support/cohesiveness and high conflict) appear to be a particular risk factor for poorer adjustment. Notably, this has been found longitudinally and, in some cases, appears to remain an important predictor even when accounting for parenting factors. However, a significant amount of the research at the family-level has used self-reports of functioning. Concerns have long been brought up by family researchers about the validity of relying on self-report measures to assess family functioning (Kerig & Lindahl, 2001). Individual reporting about the family may reflect 'true' family functioning, but may also reflect individual's own perceptions/feelings about the family climate, which may themselves be associated with adolescent adjustment (Kerig, 1995; Stuart & Jose, 2012). Thus, it remains somewhat unclear whether past self-report results are indicative of a true family functioning-adjustment link or something else (e.g., perceptions of family relationships predicting adjustment). Thus, studies that use observational methods to assess family interactions (notably, in groups larger than the triad) will be quite useful in corroborating and extending past research on the links between whole-family functioning and early adolescent adjustment. Additionally, because we know far more about the links between family interactions/functioning and emotional or behavior problems, it may be important to continue to examine whether these factors relate to other aspects of socio-emotional adjustment like social competence.

Most significantly, this research has not generally shed light on whether family interaction style plays a similarly important role for all early adolescents or is particularly important for certain early adolescents, either because of social context (e.g., experiences of school transition) or individual child-level factors. However, this may be important to consider when examining the association between family interaction and early adolescent socio-emotional development, and the current study endeavored to examine these associations in more detail. Below, I discuss several factors that were examined in this study.

Middle School Transition

The transition into middle school has often been identified as a potential risk for future negative trajectories such as declines in academic motivation and increases in emotional problems, in part because middle school settings are organized and function in significantly

different ways than prior elementary schooling, and these differences may have significant consequences for early adolescent functioning (Anderson, Jacobs, Schramm, & Splittgerber, 2000; Eccles, Lord, & Midgley, 1991; Eccles, Lord, Roeser & Barber, 1997; Eccles et al., 1993; Simmons & Blyth, 1987). For instance, whereas prior schooling typically has children grouped by teacher and classroom and limited or no switches during the day, middle school is typically structured around switches to different classrooms and groups based on subject. Thus, children must interact with a larger group of teachers and classmates during each school day. This creates shifts in the nature of teacher-child relationships as well as peer/classmate relationships (Eccles et al., 1993; Eccles & Roeser, 2013), and necessitates strong social skills and emotional capabilities to navigate these changes successfully.

Of course, there are differences among early adolescents in the set of intrapersonal skills and vulnerabilities they bring to the school transition, as well as the quality and quantity of social supports they have to draw on to help them through this transition (Anderson et al., 2000; Chung, Elias, & Schneider, 1998; Rueger, Chen, Jenkins, & Choe, 2014). Understanding related aspects of development *before* the middle school transition may thus be important to understanding subsequent adjustment, because this determines what skills/vulnerabilities individuals bring to the transition. Family relationships and functioning, as reviewed above, remain important factors in early adolescent development during this transition period, and it is likely that the quality of family relationships youth have before making the transition influences not only the degree and quality of support they can draw on during this time, but also the set of skills (e.g., social skills) and vulnerabilities (e.g., experience of and responses to stress, heightened emotional problems) that influence their adjustment during this transition. However, we know relatively little about whether the functioning of family relationships before the transition is significant to later socio-emotional adjustment; this is especially true in regards to family (versus parent-child) functioning. What we know about family-level functioning at this time has focused on academic outcomes, finding that better family functioning (e.g., support, organization) before or at the beginning of middle school was associated with better academic outcomes (i.e., improved grades, academic self-concept, more school attachment; DuBois, Eitel, & Felner, 1994; Kurdek, Fine, & Sinclair, 1995; Xia, Fosco, & Feinberg, 2016), although other work (reviewed above) has suggested there may be effects on socio-emotional related processes as well (Bronstein et al., 1993; Bronstein et al., 1996). In light of the associations found between socio-

emotional functioning and family functioning during this age period generally, more research is warranted to better understand the links between family functioning before middle school and children's subsequent socio-emotional functioning during the middle school years.

However, timing of the transition into middle school may also be important to consider in assessing these associations. Given differences in school organization based on public/private divides as well as decisions by local school district boards, the grade distribution of middle school and time of entry differs, although typically middle school includes 6th through 8th grades (Eccles, 2004; Eccles & Roeser, 2012). Variability in the school location of 6th grade is thus common, as 6th grade may remain part of a school with younger students or be part of a new school with older students. Thus, students who enter 6th grade experience very different social and academic contexts, and this may have different effects on their adjustment compared to same-age students who do not undergo such a transition. Some research has suggested that compared to those who stay in K-6 schools, those who enter middle school have more discipline problems, more negative outcomes academically, and increased emotional problems over the same 5th to 6th grade time period (Chung, et al., 1998; Cook, MacCoun, Muschnkin, & Vidgor, 2008; Rudolph, Lambert, Clark, & Kurlakowsky, 2001; Simmons & Blyth, 1987; Theriot & Dupper, 2010). Thus, the relevance of factors – such as family relationships – that may help or hinder adjustment may be more important for those students undergoing this transition earlier because they may be at particular risk for negative outcomes. It may thus be useful to explicitly examine differences in the associations between family relationship factors and early adolescent adjustment for those who do and do not transition into middle school during this time period (5th to 6th grade).

Importance of Individual Differences

Although family and contextual (i.e., middle school transition) factors may have significant associations with early adolescent development and functioning, individual differences also play an important part in determining adjustment. Individual differences likely play a particularly important role at times of transition (Caspi & Moffitt, 1991), as these differences may leave individuals more or less able to navigate these transitions successfully – although how and why is an open question. Efforts in developmental science to understand the nature of and circumstances under which individual 'risk' factors impact child functioning has

led to two competing sets of models of the expected associations between these individual factors and adjustment outcomes: diathesis-stress and differential susceptibility.

Diathesis-stress models posit that individuals have a particular degree of vulnerability to experiencing negative outcomes (e.g., psychopathology, poor adjustment) in the face of stressful events, and that this vulnerability interacts with encountered stressors to predict adjustment (Ingram & Luxton, 2005). When individuals with high vulnerability encounter stressors, they are expected to have more negative outcomes than those who do not have these vulnerability factors. Importantly, diathesis-stress models generally posit that factors that make individuals vulnerable to negative outcomes remain consistently risks, and that the main differentiating factor in outcomes is encountering different degrees of stress that 'activate' the vulnerability factors. An alternate theoretical model, differential susceptibility has been proposed by Belsky (1997, 2005; Belsky & Pluess, 2009) to account for the complex associations between 'risk' factors and adjustment outcomes that have emerged in the developmental literature. Rather than conceptualizing certain factors (e.g., difficult temperament) as purely predispositions to negative outcomes, the model posits that such factors may instead serve as indices of biological sensitivity to the environment. That is, individuals who have certain genetic, biological and/or temperamental traits may simply be more sensitive to contextual factors in the environment than others. Thus, in negative environments, individuals who have these traits may indeed have worse outcomes because they are more susceptible to the effects of negative environments (Belsky & Pluess, 2009). In positive environments, however, 'susceptible' individuals are likely to also exhibit better outcomes than their 'non-susceptible' peers because they are more sensitive to, and thus better able to benefit from, positive features of their environments (termed vantage sensitivity; Pluess & Belsky, 2013). With these conceptual models in mind, I next highlight two individual difference factors that I believe may interact with whole-family functioning to predict early adolescent adjustment.

***Emotional reactivity*.** Emotional reactivity is the predisposition to react to emotional stimuli with a particular degree of intensity, and is typically viewed as one component of temperament that emerges very early in life (Eisenberg & Fabes, 1992; Rothbart, 1989; Rothbart & Bates, 2006). Individuals may be predisposed to react to both positive and negative emotional stimuli/events with varying degrees of intensity (i.e., low to high) and typical type of emotional response (e.g., fear, anger, joy etc). In general, highly emotionally reactive children are thought

to be more reactive to their environments (and thus its features/quality), and to need more external support to modulate their high emotions appropriately, either directly (e.g., co-regulation of emotion) or through help learning skills to manage on their own (Eisenberg & Fabes, 1992; Rothbart, 1989). Notably, some have argued that individuals who are already predisposed to experiencing heightened stress and emotional reactivity may have worse outcomes (e.g., psychopathology) during puberty and adolescence, as this age period generally entails heightened reactivity to emotional stimuli and stress (Spear, 2009). Thus, when considering socio-emotional outcomes in early adolescence, emotional reactivity may be an especially important individual difference factor to consider.

There is evidence that children's degree of emotional reactivity does interact with their family environments to predict their socio-emotional adjustment. Research generally suggests that emotional reactivity does interact with quality of parenting to predict socio-emotional adjustment; for instance, worse outcomes (e.g., more externalizing, less competence, more internalizing problems) for highly negatively reactive children when experiencing less sensitive and/or negative parenting (for reviews see Bates, Schermerhorn, & Petersen, 2012; Putnam, Sanson, & Rothbart, 2002; Rothbart & Bates, 2006). We know less about how emotional reactivity interacts with other family subsystem factors, although what we do know suggests it likely plays a similarly moderating role. For instance, Hentges, Davies and Cicchetti (2015) found that negative reactivity interacted with the degree of interparental conflict to predict toddler-aged children's problem behaviors over time, with high reactive children showing worse outcomes in the context of high conflict, and better outcomes in the context of low conflict. Research in early childhood also suggests that negative emotionality interacted with sibling relationship quality to predict internalizing problems, with high reactive children being specifically susceptible to the influence of positive (i.e., predicting lower internalizing) and negative (i.e., predicting higher internalizing) sibling relationships, although this was specifically found for boys (Morgan, Shaw, & Olino, 2012).

Notably, only limited research has examined whether emotional reactivity acts in a similar manner for early adolescents' in terms of the quality of their non-parent-dyad family relationships, but what we do know suggests this may be an important moderator to consider when examining links between family functioning and adjustment outcomes. Research using a self-report measure of family cohesion found that negative emotional reactivity did moderate the

association between degree of family cohesion and later internalizing and externalizing symptoms in a sample of early adolescents, such that children with higher negative emotional reactivity showed more internalizing and externalizing symptoms at low levels of family cohesion (Rabinowitz, Osigwe, Drabick, & Reynolds, 2016). As this research used reports of family functioning, we know less about whether these associations would emerge when examining observed family interaction quality as well, as family cohesion could index somewhat different family factors than observations of interaction quality. Thus, more research on the associations between family functioning and emotional reactivity is warranted, particularly research that examines the associations using observations of family interaction quality.

Gender. Although a different kind of individual difference, gender may also play an important role in the strength and types of associations found between family functioning and early adolescent adjustment. Results from several studies do suggest that early adolescent girls may be somewhat more susceptible to the effects of the quality of their family environment (Davies & Lindsay, 2004; Davies & Windle, 1997; Farrell & Barnes, 1993). For example, Davies and Windle (1997) found that low family intimacy (a measure of support) was associated with depression, conduct problems and alcohol use for adolescent girls but not boys, and that the effect of family environment on girls' adjustment remained even when accounting for other family risk factors (i.e., maternal depression, marital discord). In part, this gender difference may be accounted for by gender differences in responsiveness to interpersonal stress, as girls have been theorized to be more reactive to interpersonal stressors, such as lower quality family relationships (Davies & Lindsay, 2004; Rudolph, 2002). On the other hand, other studies have either failed to find significant gender differences or found that gender differences emerged for some, but not all, outcome measures (for instance, Bronstein et al., 1996). Others have shown that boys and girls may simply be susceptible to different types of disturbances in family interactions (i.e., disengagement versus alliance formation; Lindahl, Bregman, & Malik, 2012). While the evidence is mixed, the emergence of gender differences in the literature on early adolescents and their families does warrant further examination, particularly in light of the possible difference in responsiveness to interpersonal stressors.

Chapter Three: Overview of Study

In this dissertation study, I sought to extend our knowledge of the possible associations between family-level functioning and early adolescents' socio-emotional adjustment. As reviewed above, family-level functioning is theoretically distinct from other relationships in the family, and thus needs to be examined as a potential contributor to socio-emotional adjustment as a distinct factor. Observational measures of family interaction are key to capturing the dynamics of family functioning that are not captured via self-report measures. Thus, I used observational measures of family interaction to test whether family functioning contributes to early adolescent adjustment. Data from the NICHD Study of Early Child Care and Youth Development was used, specifically data from the sample of children and families who participated in a family interaction task during the 5th grade year. These children and families also had assessments of child functioning at the 5th and 6th grade time points, enabling an examination of socio-emotional adjustment across time.

In this study, I addressed the following research questions:

Research Question 1: Is family interaction style significantly associated with early adolescents' socio-emotional adjustment across time?

Family interaction style at 5th grade was examined as a predictor of early adolescents' socio-emotional adjustment during the 6th grade year, controlling for 5th grade adjustment. Socio-emotional adjustment was examined by three broad measures of emotional health (i.e., internalizing problems), behavior problems (i.e., externalizing problems) and social competence (i.e., social skills). Notably, family functioning and/or non-dyadic interaction has typically been examined in relation to their influence on emotional and/or behavioral problems (although see Bronstein et al., 1993; Crandall et al., 2015; Gauze et al., 1996), so examining positive outcomes (i.e., social competence) will add to the literature on these associations in particular.

As reviewed above, past research has suggested that both positive (e.g., support, cohesiveness) and negative (e.g., conflict) aspects of family functioning and interaction are associated with early adolescent adjustment, but few studies have examined both positive and negative dimensions in the same study. What research that has done found that positive (i.e., warmth) and negative (i.e., conflict/hostility) dimensions of family interaction in the triadic context had different degrees of association with child adjustment, at least when examining externalizing (Benson & Buehler, 2012). Continuing to explore the similarities and/or

differences in association that positive and negative dimensions of family-level interaction have with adjustment is thus useful in extending our knowledge of this topic. To this end, positive (e.g., warmth, engagement) and negative (e.g., negativity and conflict) aspects of family interaction were examined as separate constructs to examine whether they had unique associations with early adolescent socio-emotional adjustment. I hypothesized that more positive family interaction would predict less internalizing and externalizing and greater social competence in 6th grade, whereas more negative interaction would predict more internalizing and externalizing problems in the 6th grade. Given past evidence of the importance of negative family interactions (for instance, Benson & Buheler, 2012), I expected that the associations between negative family interaction and internalizing and externalizing would be stronger than those between positive interaction and these outcomes. However, I expected that positive family interaction would be more strongly associated with social competence given that these types of interactions may be beneficial to the development of a variety of skills (e.g., social skills, better coping skills) that aid in competence in the school and peer environment.

Research Question 2: Are associations between family interaction style and early adolescent socio-emotional adjustment moderated by (a) experiencing middle school transition, (b) child emotional reactivity, and (c) child gender?

2a. Do associations between family interaction style and early adolescent adjustment differ for children who experience a school transition versus those who do not? As discussed above, experiencing a school transition is potentially a significant stressor in children's lives. Transition to middle school poses particular challenges as changes in school structure necessitate interacting with a wider variety of peers and teachers than in elementary school and in general middle school structure has been critiqued as not being well suited to the developmental needs of early adolescents (Eccles et al., 1993). During school transitions, children must draw upon internal resources (e.g., emotional regulation, social skills) and social support resources (e.g., relationships with family) to help them navigate these challenges, thus making the quality of these resources particularly important to socio-emotional adjustment outcomes. However, not all children experience a school transition between 5th and 6th grade, and the pattern and strength of associations between family interaction style and adjustment outcomes may differ for those children who do and do not experience a school transition during this time period. Thus, I examined whether associations between family interaction quality and adjustment differed for

children who experienced a school transition between 5th and 6th grade from those who did not experience a school transition. Although exploratory, I predicted that the relative benefits or risks conferred by positive or negative family interaction would be stronger for those children experiencing school transition than for those children who do not experience school transition. Children who undergo a school transition experience more stress and need for social support to help them adjust, thus making the quality of their family relationships potentially more important to their level of adjustment.

2b) Do associations between family interaction style and early adolescent adjustment vary as a function of child emotional reactivity? Although family functioning may generally be associated with child outcomes, it is possible that child emotional reactivity may moderate these associations, such that some children may be more influenced by family interaction style than others. Both diathesis-stress and differential susceptibility (Belsky, 1997, 2005; Belsky & Pluess, 2009) models would suggest that high-reactive children will fair worse in family environments with more a negative interaction style because these are stressful, emotionally-arousing environments and further, unlikely to foster the skills or support they, in particular, may need to deal with other life stressors. However, differential susceptibility theory suggests that high-reactive children may actually show more positive adjustment when their families have a more positive interaction style, as they can benefit more from the positive aspects of these environments (e.g., more supportive relationships, more opportunities to learn social and/or emotional skills, low relational stress). To date, however, examination of these associations and their possible moderation by child emotional reactivity has not been undertaken, and thus is a novel contribution to the literature.

I therefore examined whether family interaction style interacted with child emotional reactivity to predict early adolescent socio-emotional adjustment. Prior literature (reviewed above) has found evidence that constructs related to emotional reactivity (i.e., negative emotionality) were moderators of the associations between family relationship quality and early adolescent adjustment (Rabinowitz, Osigwe, Drabick, & Reynolds, 2016), and there is some evidence that emotional reactivity is a susceptibility factor to the effects of observed relationship quality for relationships other than the parent-child dyad (for instance, Hentges, Davies, & Cicchetti, 2015; Morgan, Shaw, & Olino, 2012). I therefore hypothesized that emotional reactivity would be a moderator of the associations between family interaction and adjustment

outcomes, such that children high in emotional reactivity will be particularly affected by the quality of family-level interactions. Specifically, in line with the differential susceptibility model, I predicted that: (a) the association between negative family interaction and adjustment would be strongest for high-reactive children, but also that (b) the association between positive family interaction and better adjustment (i.e., more social competence, less externalizing, less internalizing) would be strongest for high-reactive children as well.

2c) Do associations between family interaction style and early adolescent adjustment differ by child gender? While the findings on gender differences in associations between family functioning and adjustment have been mixed, there is some evidence that girls may be more susceptible to the effects of family environment quality (Davies & Windle, 1997; Davies & Lindsay, 2004; Farrell & Barnes, 1993), perhaps because they are more responsive to interpersonal stressors (Rudolph, 2002). Given this, girls who experience lower quality family environments (e.g., characterized by less positive, more negative interaction) may be at particular risk for later adjustment problems like depression. To investigate possible gender differences in these associations, I examined whether gender moderated the associations between family interaction style and adjustment outcomes. I hypothesized that the association between negative family interaction and internalizing symptoms would be stronger for girls than for boys, such that negative interaction would predict greater internalizing symptoms for girls in 6th grade. In contrast, I hypothesized that the association between negative family interaction and externalizing symptoms would be stronger for boys given their general risk for adjustment difficulties during this age period, and predicted that negative family interaction at 5th grade would predict greater externalizing in 6th grade.

Research Question 3: Do the contributions family interaction quality make to early adolescent adjustment remain when accounting for the effects of parental sensitivity?

Although secondary to the above aims, to fully assess the contribution of family interaction style to early adolescent adjustment, I tested whether associations between family interaction and adjustment outcomes remained significant when accounting for parental sensitivity during dyadic parent-child interactions. Doing so allowed for a test of family systems theory, specifically testing the supposition that family interaction is distinct from the effects of parent-child relationship quality. Both mothers and fathers were assessed in a dyadic context with their children during the 5th grade year, and these observational measures were used as

indices of parental sensitivity. Given the differences between dyadic and larger-family contexts, it was expected that family interaction effects would remain even when accounting for parental sensitivity. Although I did not focus on the associations between parent-child relationships and early adolescent adjustment as key aims in the study, I assumed that parental sensitivity would also be significantly associated with early adolescent socio-emotional adjustment, with greater sensitivity (i.e., autonomy and emotionally supportive, less hostility) associated with better adjustment, in line with past research (Collins & Laursen, 2004; Collins & Steinberg, 2006; Peterson & Bush, 2015).

Chapter Four: Method

Participants

The sample used in these analyses was a subset of children and families who participated in the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (NICHD SECCYD). The 1,364 families who initially took part in the NICHD SECCYD were recruited in 1991 at hospitals near 10 data collection sites across the United States. Families were randomly selected from live births at designated hospitals to ensure that the final sample reflected certain mother-work characteristics and reflected the demographics of the data collection site. Families were excluded from the sample if the newborn had a known disability or had been hospitalized extensively after birth, the mother was younger than 18, did not sufficiently speak English or had substance abuse problems and/or family visitation would have been difficult (e.g., family lived far away, intended to move outside the data collection area, or lived in a dangerous neighborhood). Data collection subsequently took place in four phases, starting when study children were 1 month old and following them through middle adolescence. The current study uses data from Phase III (2000-2004), which assessed children each school year from 2nd grade through 6th grade.

Of the 1,100 families who took part in Phase III, 900 completed a family interaction assessment when children were in 5th grade. Of these 900 families, families were included in the current study if: (a) the family had family-level coding completed for the interaction session, (b) the mother and father figure (biological, step or cohabiting partner) were the only adults taking part in the family interaction task, (c) the family observation was known to have occurred when the children were in 5th grade, and (d) the child's schooling was typical (i.e., not homeschooled, proceeded to 6th grade, not ahead grade-wise). Seven families were excluded for having no family-level data coded. Families who had no mother present in the interaction (n = 20), had only mothers as the adult family member in the interaction (n = 159), had more than two adults (e.g., grandparents or other relatives) participating in the family interaction (n = 9) or had someone other than the father/stepfather/mother's significant partner as the significant 'other adult' in the interaction (n = 20) were excluded. Families for whom the family-visit did not occur during the 5th grade year (n = 58), as well as cases of atypical schooling (n = 22) were also excluded. This left a final sample of 605 children (295 boys and 310 girls) and their families for inclusion in current study analyses.

Of the 605 study children, 88.9% were White, 5.6% were Black, and 5.5% other race/ethnicity. Children were on average 10.39 years of age (*SD* = .50; range: 10-12 years) at the time of the 5th grade teacher assessments and were 11.32 years of age (*SD* = .48; range: 11-13 years) at time of the 6th grade teacher reports. In regard to birth order, study children were 45% first born, 39.7% second born, 11.1% third born, 3.3% fourth born and 1.1% fifth, sixth or seventh born. At the 5th grade time point, 92.2% of the mothers were married, and 79% of the families were classified as traditional nuclear families (i.e., only married parents and children lived in the home). Mothers averaged 14.81 years of education (*SD* = 2.38; range: 8-21 years) and fathers averaged 15.25 years of education (*SD* = 2.59; range: 6-21 years), as reported at the initial 1-month time point. Families' income-to-needs ratio averaged 5.23 (*SD* = 4.06; range: .32-27.84) at the 5th grade time point.

Compared to those families who participated in the family interaction task but were excluded from analyses ($n = 295$), families who were included had a significantly higher income-to-needs ratio (5.23 versus 3.15), $t(853) = 7.42$, $p < .001$ and level of maternal (14.81 years versus 13.81 years), $t(898) = 5.90$, $p < .001$, and paternal education at 1 month of age (15.03 years versus 14.09 years), $t(836) = 4.77$, $p < .001$. The included sample also included more White (versus other race) children, χ^2 (1, $N = 605$) = 16.84, $p < .001$. Included families had higher mean level family negativity and conflict (1.87 versus 1.72), $t(890) = 2.19$, $p = .03$, family enthusiasm (3.68 versus 3.46), $t(890) = 3.60$, $p < .001$, and family chaos (2.06 versus 1.85), $t(890) = 3.04$, $p = .002$ during the family interaction task compared to families who were excluded from analyses. Children in the included sample also differed on 6th grade outcome adjustment measures from children from families excluded from analyses, with lower levels of internalizing problems (4.49 versus 6.14), $t(737) = -3.71$, $p < .001$, and externalizing problems (4.50 versus 7.10), $t(737) = -3.70$, $p < .001$, and higher levels of social competence (44.99 versus 40.95), $t(723) = 5.00$, $p < .001$.

Of the 605 family interaction sessions to be examined, 86.6% ($n = 524$) involved the study child's father, 9.4% ($n = 57$) involved the study child's stepfather, and 4.0% ($n = 24$) involved the mother's cohabiting partner. Additionally, 85% ($n = 514$) of the interaction sessions included at least one other child in addition to the study child, whereas 15% ($n = 91$) involved just the study child and both parents (i.e., mother and father figure). The number of other children included in the family interaction session ranged from 1 to 6, with 59.3% ($n =$

308) of the sessions involving another child involving only one other child. Of the sessions involving at least one other child, 93% (*n* = 478) involved only the study child's biological siblings, while 7% (*n* = 36) involved stepsiblings, half-siblings or other children in the family (alone or in combination with biological siblings).

Although no explicit information was collected on whether the family interaction represented a "true" whole-family interaction (i.e., all family members living in the home participated in the family interaction task), comparison between the number of adults and children listed as part of the household in 5th grade to the number participating in the family interaction task was conducted to best estimate whether the family interaction represented the whole household or not. In 79% of cases (*n* = 478), the number of adults and children matched those numbers listed as part of the household, and these cases could best be considered as likely representing whole-family interaction during the family interaction session. Of the non-matching cases (*n* = 120), 70% (*n* = 84) of the cases involved differences in only the number of children listed as living in the home, 23.3% (*n* = 28) of the cases involved differences in the number of adults living in the home, and 7.7% (*n* = 8) of the cases involved different numbers of adults and children living in the home.

Procedure

Family interaction task. In the fall of 5th grade, children and families participated in a home visit, which included completing a family interaction task designed to elicit whole-family interaction. During the family interaction task, the study child, household adults (typically mother and father) and siblings (or other children considered part of the household) completed a 10-minute family vacation-planning task. Families were told that they needed to plan a seven-day Florida vacation together. The task involved a system of 'activity tokens' used to pay for different activities on each day of the vacation. Families were given a limited number of activity tokens and were told that they needed to discuss as a family how they would choose to use their vacation time/tokens on each day of the vacation. Directions to the family emphasized inclusion of all members in the family discussion. Individuals (adults or children) participated in the family interaction task if they were permanently living in the home or frequently part of the household and if they were considered to have a family role in the household (versus just being co-resident). Scheduling of visits was done to maximize the inclusion of all relevant household

members if at all possible. The family interaction tasks were videotaped and sent to a centralized location for behavioral coding.

Parent-child interaction tasks. Assessments of parent-child dyadic interactions were also collected in the 5th grade year. During the 5th grade home visit, children and fathers were videotaped while they participated in two dyadic interaction tasks together: (a) a 7-minute 'Family Issues' discussion task and (b) a 7-minute 'Tower of Toothpicks' problem-solving task. During the Family Issues task, fathers and children discussed their top three areas of disagreement about issues parents and children typically have conflict over (e.g., homework, personal appearance, etc.). During the Tower of Toothpicks task, fathers and children worked together to build a 1-foot high tower out of toothpicks and other materials.

Mothers and children participated in a separate lab visit in the spring of the 5th grade year. In the course of the lab visit, mothers and children completed two dyadic interaction tasks together: (a) a 7-minute 'Family Issues' discussion task and (b) a 7-minute 'Egg Bungee Jump' problem-solving task. The Family Issues task was identical to the one used during the father-child session described above; mothers and children discussed their top three areas of disagreement about issues parents and children typically have conflict over. During the Egg Bungee Jump task, mothers and children worked together to build a sling to protect an egg from breaking when the egg was launched. In limited cases, the mother-child interaction tasks occurred during the time of the home visit instead of the lab visit.

Questionnaire measures. Questionnaire data were collected from both parents and teachers during the 4th, 5th and/or 6th grade school years. Mothers and fathers each independently reported on child emotional reactivity at the 4th and 5th grade time points. Additionally during the spring of the 5th and 6th grade school years, classroom teachers completed questionnaires about child adjustment, including measures of child behavior problems and social competence. Information about the child's school (e.g., type, school grade levels) was also collected for the 5th and 6th grade school years.

Measures

Family interaction style. Family-level, dyadic (e.g., mother-child) and individual behaviors were coded from the videotaped whole family interaction sessions. All behavioral codes were global, single ratings based on interaction during the full 10-minute vacation-planning task. For the purposes of the current study, six whole-family ratings were examined.

Family interaction was rated on a series of 5-point scales, ranging from 1 (*not at all characteristic)* to 5 (*very characteristic)*. *Positive affect and warmth* assessed the degree to which family members expressed positive emotion and physical affection with one another during the interaction. *Enthusiasm* assessed the degree to which family members showed signs of being fully and eagerly engaged with one another in working on the task. *Respect* assessed the degree to which members of the family sought to understand and validate one another's perspectives during the interaction. *Negativity and conflict* assessed the degree to which family interactions were characterized by expressions of negative affect and tension among family members. *Chaos* assessed the degree to which interactions among family members appeared to lack structure, were disorganized, and/or involved interruptions in the flow of the interaction. *Detachment* assessed the degree to which family members were disinterested, uninvolved, or emotionally distant from one another.

The above whole-family interaction codes were developed for the NICHD SECCYD using prior family observation systems (i.e., System for Coding Interactions and Family Functioning, Lindahl & Malik, 1996; The Family Coding System, Gordis & Margolin, 1999; Family Interaction Identifying Maltreating Families Coding Manual, Howes, Toth, & Cicchetti, 2000) as a basis for the current coding scheme. Interobserver reliability for the observational measures was assessed from 9.4% (n = 85) of cases. Reliability coefficients were computed using intraclass correlations (Winer, 1971) and were high for positive affect and warmth (.91), enthusiasm (.84), respect (.90), negativity and conflict (.95), detachment (.89) and chaos (.92). These variables were used as indicators of latent variables tapping positive and negative dimensions of family interaction (see Results).

Parental sensitivity. Parental behavior was assessed from the videotaped mother-child and father-child dyadic interaction tasks at 5th grade. Behavioral coding was in line with coding schemes developed for parent-child interactions in earlier phases of the NICHD SECCYD (Egeland & Hiester, 1993; Owen, Barfoot, Vaughn, Domingue, & Ware, 1996; Pianta, 1994). Global ratings were given to each parent for their behavior observed across both dyadic interaction tasks (i.e., 7-minute family issues discussion and 7-minute problem-solving task). Parental behavior was rated on a series of 7-point scales, ranging from 1 (*very low*) to 7 (*very high*). *Supportive presence* assessed the degree to which the parent expressed positive regard towards, and provided emotional support to, the child. *Parent's respect for autonomy* reflected

the degree to which the parent respected and affirmed the child and his/her opinions, thoughts and efforts. *Parental hostility* assessed the degree to which the parent expressed negative affect towards the child, or rejected or discounted the child.

Composites of *maternal sensitivity* and *father sensitivity* were created using a sum of the respective parent's ratings of supportive presence, respect for autonomy and parental hostility (reverse scored). Higher scores represent more parental sensitivity. Internal reliability for the parental sensitivity composites was high for mothers (3 items, $\alpha = .85$) and fathers (3 items, $\alpha = .82$). Estimates of interobserver reliability (interclass correlations; Winer, 1971) were moderate to high for each code used in the overall sensitivity composite (supportive presence = .80 and .81, respect for autonomy = .78 and .80, hostility = .77 and .78, mothers and fathers respectively).

Child emotional reactivity. Child emotional reactivity was assessed by parent reports at the 4th and 5th grade time points. Parents individually completed the Parent Report of Children's Reactions scale (Eisenberg, Fabes, Murphy, Maszk, Smith, & Karbon, 1995) at both time points. The 10-item measure assesses the degree and intensity of the child's expression of emotion. Parents each rated how characteristic of the study child a series of statements about emotional reactions were (e.g., "When my child is happy, he/she is bursting with joy", "My child is slow to become angry, nervous or upset") using a 5-point rating scale (1 = *never*, 3 = *about half the time*, 5 = *always*). Emotional reactivity scores were created using the average of all ratings for the 10 statements; higher scores indicate greater emotional reactivity. Scores were calculated individually for mothers and fathers at the 4th and 5th grade assessments. Internal reliability for the scale was adequate for both mothers ($\alpha = .74$ and .77, 4th and 5th grade) and fathers ($\alpha = .71$ and .72, 4th and 5th grade). Emotion reactivity scores were correlated among reporters at 4th grade ($r = .41$, $p < .001$) and at 5th grade ($r = .43$, $p < .001$), as well as across time within-reporter (mother: $r = .75$, $p < .001$; father: $r = .67$, $p < .001$). Therefore, a composite variable of *child emotional reactivity* was created by averaging mother and father 4th and 5th grade ratings. This composite was used in the analyses.

Child behavior problems. Child behavior problems were assessed in 5th and 6th grade using the Teacher Report Form of the Child Behavior Checklist (CBCL; Achenbach, 1991). The CBCL assesses the degree to which children exhibit a variety of behavioral or emotional problems, and is widely used and well-validated for assessing behavior and emotional problems

in this age group (Achenbach, 1991; Achenbach & Rescorla, 2001). Teachers rated how characteristic behavior problems were of the study child within the last 2 months. Teachers rated 118 behavior problems on a 3-point scale (0 = *not true as far as you know*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*). Raw scores for the *internalizing* (comprised of Withdrawn, Somatic Complaints and Anxious/Depressed subscales) and *externalizing* (comprised of Delinquent and Aggressive subscales) scales were calculated at the 5th and 6th grade time points and are used in analyses. Higher scores reflect more significant behavioral and/or emotional problems. Internal reliability was good for the internalizing (35 items, $\alpha = .86$ and .87, 5th and 6th grade, respectively) and externalizing scales (34 items, $\alpha = .95$ and .95).

Child social competence. Child social competence was assessed in 5th and 6th grade using the Teacher Version of the Social Skills Rating System (SSRS; Gresham & Elliot, 1990). The SSRS assesses the degree to which children engage in adaptive, socially appropriate behaviors, such as at school with teachers and peers. Teachers rated how often the study child engaged in cooperation (10 items), assertiveness (10 items) and self-control (10 items), using a 3-point scale (0 = *Never*, 1 = *Sometimes*, 2 = *Very Often*). The total social skills score was computed by summing all 30 items and was used in the current study as a measure of general social competence. Higher total scores reflect more adaptive social skills and social competence ($\alpha = .94$, both at 5th and 6th grade). Gresham and Elliot (1990) reported that the SSRS has showed adequate convergent and discriminant validity when compared with other standard measures of child behavior problems and social skills in samples of elementary school-aged children.

School switch. A dichotomous measure of having switched or stayed in the same school between 5th and 6th grade was created using the school information collected during the 5th and 6th grade years. School switch was determined by comparing the school ID number reported for the child's 5th grade school with that of their 6th grade school, or by comparing children's attendance in one type of school to another during these years (e.g., switch from public to private school). Cases where the 5th and 6th grade school ID did not match, or there was a switch between school types, were coded as having switched schools ($n = 250$). Cases where the school ID was the same were coded as having stayed in the same school ($n = 179$). For 37 cases, there was no data available on 6th grade school to determine switch directly, but the child had attended a school in which 5th grade was the highest grade in the school. It was therefore assumed that

these children would have had to switch schools and were included in the switched-schools group, leading to a total of 287 cases of school switch and 179 in the stay group (total: $N = 466$). No school-level data were collected for cases where children attended private school, so no switch variable could be calculated for cases where children attended private school in 5th and 6th grade ($n = 109$). Of the cases where students switched schools, 74.56% ($n = 214$) switched into some kind of middle school (e.g., 6-8 grade schools), and of those cases where children stayed in the same school, 77.65% ($n = 139$) of cases involved staying in a K-6 school. In analyses, 0 was coded as switched schools and 1 was coded as stayed in same school.

Data Analytic Plan

Analyses using structural equation modeling were conducted in Mplus 8.0 (Muthén & Muthén, 1998-2017). As a first step in analyses, confirmatory factor analysis was conducted to examine whether family interaction was best represented by one or two factors (i.e., positive and negative interaction). The better fitting measurement model was used in structural models to examine the main effects of family interaction on 6th grade socio-emotional adjustment outcomes, when controlling for 5th grade adjustment (Question 1). To address Question 2 (a, b and c) about the possible moderation of associations between family interaction and 6th grade socio-emotional adjustment, Aiken and West's (1991) recommendations for testing moderation was utilized. Models were first tested to assess the main effects of moderators and then tested with the interaction(s) between the moderator of interest and latent family interaction variable(s) entered in the model. As the family interaction variables were latent variables, the interaction terms were created with the XWITH command in Mplus, which is designed to allow for the creation of interactions between latent and other latent or observed variables. For Question 2a (school switch as moderator) and 2c (child gender as moderator), interaction terms were created with the respective dichotomous (0 or 1) variables. Significant interactions were probed by testing the significance of the family interaction paths when each group was coded as 0 (e.g., model estimate when 0 = male versus 0 = female). For Question 2b (child emotionality as moderator), the interaction term was created using the centered score for the child emotionality composite. Finally, to address Question 3 (including parental sensitivity), for those models where a significant main or moderated effect of family interaction emerged, models were tested again with parental sensitivity included in the model to test if the effect remained when accounting for parent-child relationship quality.

In each of these structural models, all three socio-emotional adjustment outcomes (i.e., internalizing, externalizing, and social competence) were examined together, and models accounted for the residual covariances among these outcomes. Further, to test whether family interaction predicted 6th grade adjustment above and beyond adjustment during 5th grade, I controlled for the respective 5th grade adjustment measure on the 6th grade outcome (e.g., 5th grade externalizing problems predicting 6th grade externalizing problems). To control for the effects of significant covariates (see Preliminary Analyses below), these variables were entered as predictors of family interaction variable(s) and 6th grade adjustment outcomes in all models, and as predictors of child emotional reactivity in moderation analyses. Covariances among all 5th grade adjustment covariates (i.e., 5th grade internalizing, 5th grade externalizing, 5th grade social competence), family interaction variables (i.e., positive interaction and negative interaction), and in moderation analyses, moderators (i.e., school switch and child emotionality) were entered in the models. Covariances between child gender and maternal education and 5th grade adjustment covariates were also entered into the models, as were the associations between these variables and moderators in moderation analyses. In addition, variances for these variables were entered in the models to retain all cases in the analyses, as cases are otherwise dropped for missing data on exogenous variables.

For all models, given the potential biasing of fit indices if variables show evidence of non-normality (e.g., kurtosis), robust maximum likelihood estimation (MLR) was used. In general, missing data were handled using full-information maximum likelihood (FIML) estimation, which provides less biased estimates than other methods of handling missing data (Schafer & Graham, 2002). Only for models involving school switch were other methods of handling missing data also necessary (see 'Moderation by School Switch' section below for discussion). Several model fit indices were used to evaluate the fit of the models. Because the χ^2 test of model fit is typically significant when sample sizes are larger (>400), root-mean-square error of approximation (RMSEA), comparative fit index (CFI) and Tucker Lewis Index (TLI) as indices of model fit were also examined. RMSEA is widely used and has been recommended for use in SEM because in part because confidence intervals can be calculated and usefully examined to assess model fit (Byrne, 2012; MacCallum & Austin, 2000), and the 90% confidence interval for RMSEA was also examined when assessing model fit. Conventional cutoffs for assessing model fit were used for RMSEA: values at or less than .01 indicate

excellent fit; values .01-.05 indicate good fit, values .05-.08 indicate adequate fit, .08-.10 indicate borderline fit and values >.10 indicate poor fit (Hu & Bentler, 1995; MacCallum, Browne, & Sugawara, 1996). For CFI and TLI, values at or above .95 represent good model fit (Hu & Bentler, 1999).

Chapter Five: Results

Preliminary Analyses

Descriptive statistics for study variables can be found in Table 1. Correlations among main study variables can be found in Table 2.

Table 1

Descriptive Statistics for Main Study Variables

	n	**Potential Range**	**Actual Range**	***M***	***SD***
Family interaction					
Positive Affect and Warmth	605	1-5	1-5	3.04	.90
Enthusiasm	605	1-5	1-5	3.68	.81
Detachment	605	1-5	1-5	1.97	.90
Negativity and Conflict	605	1-5	1-5	1.87	.94
Respect	605	1-5	1-5	3.81	.88
Chaos	605	1-5	1-5	2.06	.96
Parental sensitivity					
Maternal sensitivity	542	7-21	7-21	16.78	2.26
Father sensitivity	586	7-21	7-21	17.04	2.25
Child emotional reactivity					
Composite parent rating	603	10-50	19.25-45.50	33.08	4.29
Socio-emotional adjustment					
Internalizing – 5^{th}	554	0-70	0-34	4.72	5.31
Internalizing – 6^{th}	517	0-70	0-32	4.49	5.10
Externalizing – 5^{th}	554	0-68	0-50	4.76	7.82
Externalizing – 6^{th}	517	0-68	0-56	4.50	8.03
Social competence – 5^{th}	551	0-60	14-60	45.13	9.31
Social competence – 6^{th}	505	0-60	16-60	44.99	9.67

Table 2

Intercorrelations Among Main Study Variables

Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Positive affect & warmth	---	.70**	-.58**	-.39**	42**	.03	.16**	.21**	-.00	-.14**	-.03	-.12**	-.11**	.14**	.14**
2. Enthusiasm		---	-.65**	-.25**	29**	.14**	.14**	.21**	.08*	-.07	-.05	-.09*	-.08	.15**	.15**
3. Detachment			---	.49**	-.56**	.18**	-.17**	-.30**	.00	.08	.04	.11**	.09*	-.17**	-.15**
4. Negativity & conflict				---	-.75**	47**	-.14**	-.30**	.06	.04	.07	.07	.10*	-.09*	-.09
5. Respect					---	-.48**	.22**	.34**	-.10*	-.08	-.03	-.14**	-.14**	.18**	.16**
6. Chaos						---	-.03	-.10*	.07	.01	-.05	.04	.01	.02	.03
7. Mother sensitivity							---	.28**	-.14**	.13**	-.07	-.25**	-.28**	.24**	.21**
8. Father sensitivity								---	-.08*	-.09	-.10*	-.10*	-.15**	.13**	.16**
9. Child ER									---	.12**	.13**	.10*	.14**	-.08	-.06
10. Internalizing – 5th										---	.26**	.29**	.14**	-.42**	-.24**
11. Internalizing – 6th											---	.04	.27**	-.20**	-.41**
12. Externalizing – 5th												---	.53**	-.61**	-.37**
13. Externalizing – 6th													---	-.41**	-.58**
14. Social competence – 5th														---	.53**
15. Social competence – 6th															---

Note. *N* for analyses varies between 505 and 605. ER = emotional reactivity.
*$p < .05$, ** $p < .01$

Preliminary analyses were conducted to examine associations between potential demographic (i.e., parent education, family income-to-needs ratio) and child (i.e., child gender, child race, child birth order, child age at time of teacher outcome assessments) covariates and the predictor and outcome variables. In addition, family structural characteristics (i.e., mother married, family type, number of people in the household) and factors related to the whole family interaction (i.e., number of people in the whole family interaction, type of father in the interaction, whole family represented) were also examined as potential covariates. Given the limited number of family types represented in the sample, family type was treated as a binary variable, 'traditional nuclear family' (n = 478) and 'other' (n = 120). Similarly, type of father in the whole family interaction was examined as a binary variable, 'biological/adoptive father' (n = 524) and 'other father type' (n = 81). Whole family represented was also a binary variable, with 'whole represented' (n = 478) and 'not whole' (n = 120).

To narrow down the potential covariates in models, only those variables that showed a significant association with at least one family observational measure and at least one 6th grade outcome variable were considered for inclusion in subsequent models. Only child gender, mother education, father education, income needs ratio and whole family represented met these criteria. Child gender was significantly associated with family positive affect and warmth (boys: 2.97; girls: 3.12), $t(603) = -2.09$, $p = .04$, family enthusiasm (boys: 3.61; girls: 3.75), $t(603) = -2.15$, $p = .03$, family respect (boys: 3.73; girls: 3.88), $t(603) = 2.03$, $p = .04$, 6th grade externalizing (boys: 6.24; girls: 3.92), $t(515) = 4.80$, $p < .001$, and 6th grade social skills (boys: 41.78; girls: 47.78), $t(503) = -7.06$, $p < .001$. Mother education was significantly associated with: family enthusiasm ($r = .16$, $p < .001$), family connection ($r = .10$, $p = .01$), family chaos ($r = .08$, $p = .04$), 6th grade internalizing ($r = -.10$, $p = .01$), 6th grade externalizing ($r = -.23$, $p < .001$), and 6th grade social competence ($r = .20$, $p < .001$). Father education was significantly associated with: family positive affect and warmth ($r = .11$, $p = .02$), family enthusiasm ($r = .18$, $p < .001$), family connection ($r = .13$, $p = .004$), family chaos ($r = .10$, $p = .03$), 6th grade externalizing ($r = -.21$, $p < .001$), and 6th grade social competence ($r = .19$, $p < .001$). Fifth grade family income-to-needs ratio was significantly associated with: family enthusiasm ($r = .12$, $p = .001$), family connection ($r = .11$, $p = .01$), 6th grade externalizing ($r = -.16$, $p = .001$), and 6th grade social competence ($r = .13$, $p = .01$). Whether the family interaction involved the whole family (or household) was significantly associated with family enthusiasm (whole: 3.74; not

whole: 3.46), $t(596) = 3.38$, $p = .001$, family detachment (whole: 1.92; not whole: 2.15), $t(596) = -2.50$, $p = .01$, family respect (whole: 3.85; not whole: 3.63), $t(596) = 2.43$, $p = .02$, and 6th grade social skills (whole: 45.44; not whole: 43.19), $t(498) = 2.11$, $p = .04$.

Given the possible number of covariates, possible covariates were entered into main effects models individually to test whether they remained significant predictors when examined with the latent (versus observed) family variables. Only variables that were significantly associated one or both of the latent family factors (positive or negative interaction) and at least one 6th grade outcome were retained in models. Child gender and mother education met these criteria and thus were included in models examining the associations between family factors and 6th grade adjustment outcomes.

Confirmatory Factor Analysis for Family Interaction Measurement Model

A two-factor model of family interaction was proposed to represent family interaction: a positive interaction factor (indicators: *positive affect/warmth*, *enthusiasm*, and *detachment* [reverse scored]) and a negative interaction factor (indicators: *negativity/conflict*, *chaos*, and *respect* [reverse scored])) [1], with covariance between factors as it was assumed these factors would be related. To examine whether family interaction was best represented by a one- versus two-factor model, nested models were compared using the Satorra-Bentler modified chi-squared difference test of model fit[2]. Specifically, model fit for the model with the covariance between the proposed two factors constrained to 1.00 was compared to the model fit of the model where this path was unconstrained. Table 3 shows the factor loadings and fit indices for the nested one and two factor models. Fit of the two-factor model was significantly better than the fit for the one factor model $\Delta\chi^2 (1, N = 605) = 14773.07$, $p < .001$. However, the model fit for the two-factor model did not reach acceptable levels of fit for any of the fit indices, $\chi^2 (10, N = 605) = 314.59$, $p < .001$, RMSEA = .22 (90%: .20, .25), $p < .001$, CFI = .82, TLI = .73.

[1] In the process of analyses, it was discovered that the original indicators of *detachment* and *respect* best fit factors that were at odds with the directionality of their scales. To have consistent factor loading (i.e., no negatively loading indicators), each indicator was reverse-scored and included in the analysis.

[2] Because the estimator for these models is MLR, chi-square difference tests without modification are unreliable. Muthén and Muthén provide relevant output in analyses and directions for modifications to correctly calculate the chi-square test on their website (www.statmodel.com/chidiff.shtml); these adjustments were followed to estimate the corrected chi-square difference tests.

The data were therefore examined to assess whether adding residual error correlations to the model would better represent the relationship between the family interaction indicators. Inclusion of residual error correlations was based on conceptual reasoning coupled with an examination of modification indices, per recommendations for the inclusion of such correlations in models (Brown, 2015). Two considerations were explored: (a) effects of measurement (i.e., differences by observational coder) and (b) conceptual overlap in coding scheme for different family behaviors. In total, four residual error correlations were included in the final model [3] (see Figure 1). Inclusion of these error correlations conforms to recommendations for their inclusion in confirmatory factor analysis models (Kenny, Kashy, & Bolger, 1998; Kline, 2016) [4]. Compared to the two-factor model that did not include these error correlations, the model fit was improved $\Delta\chi^2$ (6, N = 605) = 287.83, $p < .001$, and the model fit was also better than the model fit for a one-factor model which included these error correlations, $\Delta\chi^2$ (1, N = 605) = 88.01, $p < .001$. Two of the model fit indices indicated strong fit, CFI = .99, TLI = .95, although RMSEA was only in the borderline range, RMSEA = .10 (90%: .06, .13). This modified two-factor model of family interaction was retained in subsequent analyses as the measure of family interaction.

[3] The following was entered in the model: *chaos* with *enthusiasm* (β = .29, $p < .001$), *chaos* with *positive affect and warmth* (β = .35, $p < .001$), *positive affect and warmth* with *enthusiasm* (β = .59, $p < .001$), *enthusiasm* with *detachment* [reverse scored] (β = .53, $p < .001$). In the case of the cross-factor error correlations, their inclusion was based on found associations between observational coder and degree of correlation between chaos and other family indicators. Namely, for one coder, but not the other, there was an association between chaos and enthusiasm (Coder 1: r = .08, p = .21; Coder 2: r = .19, $p < .001$).

[4] Specifically, the following needs must be met: (a) for each factor, "there are at least two indicators whose errors are not correlated and the errors of both indicators are not correlated with the error term of a third indicator for a different factor", (b) "for every pair of factors, there are at least two indicators, one from each factor, whose error terms are uncorrelated", and (c) "for every indicator, there is at least one other indicator (not necessarily of the same factor) with which its error term is not correlated" (Kline, 2016, p. 203).

Table 3

Unstandardized and Standardized Factor Loadings for Nested Confirmatory Models of Family Interaction

	One Factor Model		Two Factor Model	
	Unstandardized(S.E.)	Standardized	Unstandardized(S.E.)	Standardized
Positive interaction (POS)				
Positive affect and warmth	1.00 (.00)	.88	1.00 (.00)	.89
Enthusiasm	.95 (.05)	.92	.80 (.03)	.87
R-Detachment	.91 (.05)	.84	.83 (.04)	.82
Negative interaction (NEG)				
Negativity and conflict	1.00 (.00)	.58	1.00 (.00)	.91
R-Respect	-.52 (.07)	-.55	.90 (.05)	.90
Chaos	.03 (.09)	.03	.58 (.05)	.58
POS with NEG	1.00	1.00	-.63	-.63
Model fit indices				
Chi-square test	(11, N = 605), 1555.76, p < .001		(10, N = 605), 314.59, p < .001	
RMSEA	.48 (90%: .46, .50), p < .001		.22 (90%: .20, .25), p < .001	
CFI	.09		.82	
TLI	-.24		.73	

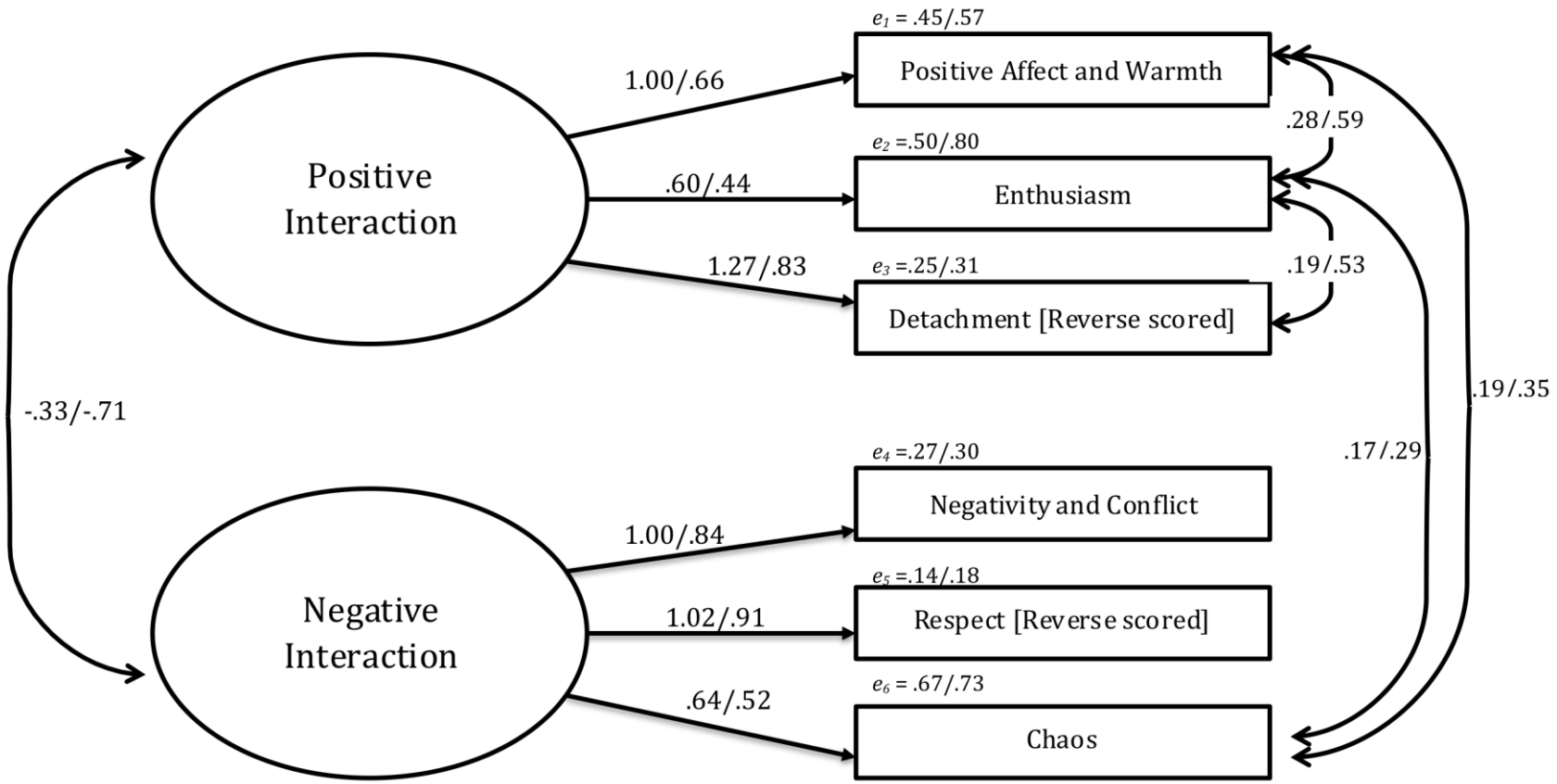

Figure 1. Estimates for measurement model of family interaction used in analyses. Unstandardized estimates are shown first, followed by standardized estimates. e_x = residual error variance for indicators. χ^2 (4, N = 605) = 26.76, p < .001, RMSEA = .10 (90%: .06, .13), p = .01, CFI = .99, TLI = .95.

Family Interaction Main Effects

Models examining the main effect of positive and negative family interaction quality on the 6th grade measures of socio-emotional adjustment were tested to address Question 1. These were tested separately by family interaction factor (positive or negative family interaction) and in a model with both family interaction quality factors. In interpretation, please note that because of the necessity of including cross-factor residual error correlations when examining the family interaction quality factors together, the modeling of these factors (i.e., positive interaction quality and negative interaction quality) differs somewhat when examining the factors individually versus together.

Separately by family interaction variable. As shown in Table 4, there were no significant main effects of positive family interaction on 6th grade socio-emotional adjustment. In the model examining negative family interaction, two main effects emerged. More negative family interaction was associated with more teacher-reported 6th grade externalizing problems (*B* = .78, *S.E.* = .39, β = .08, *p* = .04), controlling for 5th grade externalizing problems. More negative family interaction was also associated with lower teacher reported 6th grade social competence (*B* = -.92, *S.E.* = .46, β = -.08, *p* = .04), controlling for 5th grade teacher-reported social competence.

Both family interaction variables. As shown in Table 5, no main effects of either positive or negative family interaction were significant when these factors were considered together in the same model. Neither path from negative family interaction to externalizing problems (*B* = 1.15, *S.E.* = .73, β = .11, *p* = .11) or social competence (*B* = -.81, *S.E.* = .89, β = .07, *p* = .36) remained significant. Also, the strong, negative correlation between the positive and negative family interaction latent variables at 5th grade (β = -.71, *p* < .001) is notable.

Table 4

Parameter Estimates for Models Predicting 6th Grade Socio-Emotional Adjustment from Family Interaction Quality, Separately for Positive and Negative Family Interaction Quality

Outcome	Model for Positive Family Interaction [a]					Model for Negative Family Interaction [a]				
Predictor	*B*	*S.E.*	β	*p*	R^2	*B*	*S.E.*	β	*p*	R^2
Interaction (INT)					$.03^{t}$					.00
Child gender (0 = male)	.11	.06	.09	.05		-.10	.07	-.06	.17	
Mother educ	.04	.02	.15	.004		.00	.02	.01	.86	
Internalizing (6^{th})					$.06^{*}$					$.06^{*}$
Child gender	.25	.43	.03	.56		.25	.43	.03	.56	
Mother educ	-.14	.09	-.06	.14		-.15	.10	-.07	.12	
Internalizing (5^{th})	.21	.05	.22	< .001		.20	.05	.22	< .001	
INT	-.20	.36	-.03	.57		.25	.30	.04	.41	
Externalizing (6^{th})					$.29^{***}$					$.30^{***}$
Child gender	-1.85	.61	-.12	.002		-1.82	.60	-.12	.002	
Mother educ	-.47	.16	-.13	.002		-.48	.16	-.14	.001	
Externalizing (5^{th})	.47	.06	.46	< .001		.47	.06	.46	< .001	
INT	-.24	.52	-.02	.64		.78	.39	.08	.04	
Social competence (6^{th})					$.30^{***}$					$.30^{***}$
Child gender	3.85	.73	.20	< .001		3.89	.73	.20	< .001	
Mother educ	.27	.17	.06	.11		.32	.17	.08	.06	
Social competence (5^{th})	.43	.04	.42	< .001		.44	.04	.42	< .001	
INT	1.05	.63	.07	.09		-.92	.46	-.08	.04	
Model fit indices										
Chi-square test	(21, N = 605), 47.89, p < .001					(22, N = 605), 62.79, p < .001				
RMSEA	.05 (90%: .03, .06), p = .62					.06 (90%: .04, .07), p = .27				
CFI	.98					.97				
TLI	.95					.93				

[a] Positive interaction models included a residual error correlations between 'positive affect and warmth' and 'enthusiasm' indicators, whereas no residual error correlations were entered in negative family interaction modeling.

$^{t}p < .10$, $^{*}p < .05$, $^{***}p < .001$

Table 5

Parameter Estimates for Model Predicting 6th Grade Socio-Emotional Adjustment from Family Interaction Quality, Both Family Interaction Quality Factors in Model

Outcome Predictor	*B*	*S.E.*	β	*p*	R^2
Positive interaction (POS)					.01
Child gender (0 = male)	.09	.05	.08	.09	
Mother educ	.02	.01	.06	.20	
Negative interaction (NEG)					.00
Child gender	-.11	.07	-.07	.12	
Mother educ	.00	.01	.00	.99	
Internalizing (6th)					.06*
Child gender	.24	.43	.02	.58	
Mother educ	-.16	.10	-.07	.11	
Internalizing (5th)	.21	.05	.22	< .001	
POS	.38	.70	.05	.58	
NEG	.43	.50	.07	.39	
Externalizing (6th)					.30***
Child gender	-1.84	.60	-.12	.002	
Mother educ	-.49	.16	-.14	.001	
Externalizing (5th)	.47	.06	.46	< .001	
POS	.69	.97	.05	.48	
NEG	1.15	.73	.11	.11	
Social competence (6th)					.30***
Child gender	3.87	.73	.20	< .001	
Mother educ	.31	.17	.07	.06	
Social competence (5th)	.43	.04	.42	< .001	
POS	.19	1.25	.01	.88	
NEG	-.81	.89	-.07	.36	
Model fit					
Chi-square test	(42, *N* = 605), 114.96, *p* < .001				
RMSEA	.05 (90%: .04, .07), *p* = .29				
CFI	.97				
TLI	.94				

* *p* < .05, *** *p* < .001.

Moderation by School Switch

To examine whether the associations between family interaction and the 6th grade adjustment outcomes differed based whether the child experienced a school transition between 5th and 6th grade, moderation analyses were conducted using the dichotomous switch variable (0 = switch, 1 = no switch). Given difficulty in creating latent variable interactions with missing data, models examining moderation by school switch were based on a reduced sample size of *N* = 466, which reflects cases where switch data were available. Table 6 shows a comparison of the characteristics of those cases that were included versus those that were excluded from these analyses based on having school switch data. Compared to those families who are included in the analyses, those who were excluded (*n* = 139) had a significantly higher mean income-to-needs ratio (6.04 versus 4.99), $t(578) = 2.65$, $p = .01$, level of maternal education (15.20 years versus 14.69 years), $t(603) = 2.34$, $p = .02$, and paternal education (15.80 years versus 15.08 years), $t(517) = 2.76$, $p = .01$. The exclusion sample also includes more children who had attended private school in 5th grade, χ^2 (1, $N = 139$) = 89.25, $p < .001$.

Separately by family interaction variable. As seen in Table 7, no significant main effects of school switch were found in either the positive or negative interaction model, and no interaction effects were found in the negative family interaction model. In the model examining positive family interaction, there was a significant Positive Interaction x Switch interaction on social competence ($B = -3.44$, *S.E.* = 1.05, $\beta = .04$, $p = .001$). For early adolescents who switched schools between 5th and 6th grade, positive family interaction contributed to greater teacher-reported social competence in 6th grade ($B = 2.31$, *S.E.* = .82, $\beta = .19$, $p = .005$), controlling for 5th grade social competence. For those students who did not undergo such a transition, there was no significant association found between positive family interaction and 6th grade social competence ($B = -1.13$, *S.E.* = .80, $\beta = -.09$, $p = .16$). As seen in the plot of these simple slopes in Figure 2, it appears that group differences were particularly pronounced at low levels of positive family interaction.

Both family interaction variables. In the model examining positive and negative family interaction together, no significant main effects of school switch were found, and there were no significant interactions between school switch and family interaction quality (see Table 8). Notably, the Positive Interaction x Switch interaction on social competence that emerged in the positive interaction-only model did not reach significance in this model.

Table 6

Comparison of Cases Included and Excluded in School Switch Analyses

	Included (*n* = 466)			Excluded (*n* = 139)		
	n	*M*	*SD*	*n*	*M*	*SD*
Main study variables						
Positive affect and warmth	466	3.04	.91	139	3.07	.89
Enthusiasm	466	3.66	.80	139	3.76	.84
Connection	466	4.02	.91	139	4.06	.85
Negativity and conflict	466	1.89	.95	139	1.79	.92
Disrespect	466	2.21	.88	139	2.15	.91
Chaos	466	2.03	.97	139	2.14	.94
Maternal sensitivity	418	16.77	2.24	124	16.81	2.32
Father sensitivity	449	17.00	2.22	137	17.17	2.33
Child emotional reactivity						
Internalizing – 5th	436	4.64	5.21	118	5.03	5.67
Internalizing – 6th	400	4.57	5.10	117	4.23	5.17
Externalizing – 5th	436	4.56	7.58	118	5.49	8.62
Externalizing – 6th	400	4.17	7.70	117	5.63	9.03
Social competence – 5th	433	45.23	9.40	118	44.72	8.99
Social competence – 6th	391	45.24	9.40	114	45.19	9.34
Demographics						
Income-needs – 5th	448	4.99	3.84	132	6.04	4.65
Mother educ (1m)	466	14.69	2.24	139	15.20	2.37
Father educ (1m)	392	15.08	2.55	127	15.80	2.65
Child age – 5th outcomes	437	10.34	.48	119	10.55	.52
Child age – 6th outcomes	400	11.29	.47	117	11.42	.50
Child gender	Boys: 226	Girls: 240		Boys: 69	Girls: 70	
Child race	White: 414	Other: 52		White: 124	Other: 15	
Mother married	Yes: 425	No: 35		Yes: 133	No: 3	
Family type	Trad.: 360	Other: 102		Trad.: 118	Other: 18	
Whole family interaction	Yes: 363	No: 99		Yes: 115	No: 21	
Father-type in interaction	Father: 395	Other: 71		Father: 129	Other: 10	
Private school – 5th grade	Yes: 11	No: 455		Yes: 109	No: 30	

Table 7

Parameter Estimates for Models Examining School Switch as a Moderator of Family Interaction Quality as a Predictor of 6th Grade Adjustment Outcomes (N = 466), Separately for Positive and Negative Family Interaction Quality

Outcome	Model for Positive Family Interaction					Model for Negative Family Interaction				
Predictor	*B*	*S.E.*	β	*p*	R^2	*B*	*S.E.*	β	*p*	R^2
Interaction (INT)					.04*					.01
Child gender (0 = male)	.14	.07	.09	.07		-.12	.12	-.09	.08	
Mother educ	.05	.02	.15	.003		.02	.05	.07	.53	
Internalizing (6th)					.05*					.06*
Child gender	.09	.49	.01	.85		.12	.39	.01	.81	
Mother educ	-.05	.12	-.02	.66		-.06	.12	-.03	.60	
Internalizing (5th)	.21	.05	.21	< .001		.21	.05	.21	< .001	
Switch (0 = switch)	.38	.86	.04	.65		.66	.74	.06	.24	
INT	-.18	.36	-.03	.64		.18	.39	.03	.63	
INT x Switch	.30	.76	.02	.70		-.07	.86	-.01	.94	
Externalizing (6th)					.30***					.31***
Child gender	-2.13	.61	-.14	< .001		-2.09	.60	-.14	< .001	
Mother educ	-.44	.19	-.13	.01		-.46	.18	-.14	.004	
Externalizing (5th)	.45	.07	.45	< .001		.45	.07	.45	< .001	
Switch	.22	1.11	.01	.84		.37	.74	.02	.24	
INT	-.49	.61	-.05	.44		.86	.42	.11	.05	
INT x Switch	-.03	.91	-.00	.97		-.61	.96	-.03	.57	
Social competence (6th)					.27***					.27***
Child gender	4.44	.84	.23	< .001		4.24	.84	.22	< .001	
Mother educ	.21	.20	.05	.30		.32	.20	.08	.12	
Social competence (5th)	.36	.05	.36	< .001		.37	.05	.37	< .001	
Switch	3.82	1.61	.20	.02		.59	.99	.03	.55	
INT	2.31	.82	.09	.001		-1.71	1.84	-.13	.08	
INT x Switch	-3.44	1.05	-.04	.001		.99	1.42	.04	.40	

Note. Parameter estimates from model where 0 = switch, 1 = no switch.
*$p < .05$, ***$p < .001$.

Table 8

Parameter Estimates for Model Examining School Switch as a Moderator of Family Interaction Quality as a Predictor of 6th Grade Adjustment Outcomes (N = 466), Positive and Negative Interaction Quality in Same Model

Outcome Predictor	*B*	*S.E.*	β	*p*	R^2
Positive interaction (POS)					.02
Child gender (0 = male)	.11	.06	.09	.07	
Mother educ	.03	.02	.09	.40	
Negative interaction (NEG)					.01
Child gender	-.14	.08	-.09	.06	
Mother educ	-.01	.03	-.03	.72	
Internalizing (6^{th})					.06*
Child gender	.12	.48	.01	.79	
Mother educ	-.08	.12	-.03	.53	
Internalizing (5^{th})	.21	.05	.22	< .001	
Switch (0 = switch)	1.03	.89	.10	.23	
POS	.99	1.02	.12	.33	
NEG	.73	.68	.11	.28	
POS x Switch	-1.40	2.17	-.08	.51	
NEG x Switch	-.89	1.57	-.07	.57	
Externalizing (6^{th})					.32***
Child gender	-2.05	.60	-.14	< .001	
Mother educ	-.49	.19	-.14	.004	
Externalizing (5^{th})	.46	.06	.45	< .001	
Switch	1.01	1.14	.07	.38	
POS	2.32	1.76	.08	.17	
NEG	2.50	1.26	.15	.04	
POS x Switch	-3.20	2.21	-.12	.14	
NEG x Switch	-2.52	1.65	-.12	.12	
Social competence (6^{th})					.27***
Child gender	4.25	.85	.22	< .001	
Mother educ	.29	.21	.07	.15	
Social competence (5^{th})	.37	.05	.36	< .001	
Switch	1.49	1.43	.08	.30	
POS	1.35	2.39	.09	.58	
NEG	-.74	1.77	-.06	.68	
POS x Switch	-1.44	3.23	-.04	.66	
NEG x Switch	.11	2.36	.00	.96	

Note. Parameter estimates from model where 0 = switch, 1 = no switch.
* $p < .05$, *** $p < .001$

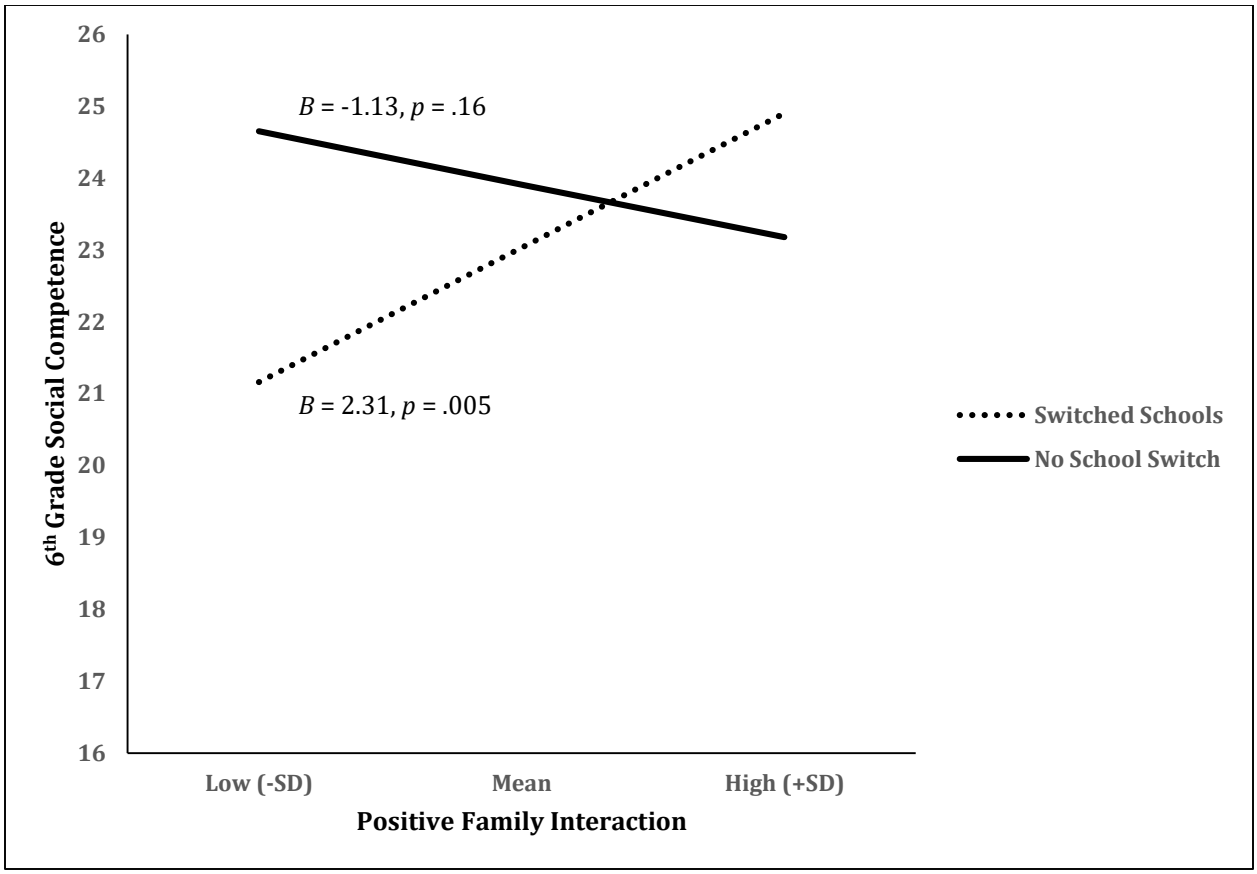

Figure 2. Moderating effect of having undergone a school switch between 5th and 6th grade on the association between positive family interaction quality and 6th grade teacher-rated social competence.

Moderation by Emotional Reactivity

Separately by family interaction variable. As seen in Table 9, there were main effects of emotional reactivity on both 6th grade internalizing and 6th grade externalizing in both positive and negative interaction models. Greater emotional reactivity was associated with more 6th grade internalizing and externalizing problem. No interaction effects were found in the negative interaction or positive interaction model.

Both family interaction variables. As seen in Table 10, there were main effects of emotional reactivity on both 6th grade internalizing and 6th grade externalizing problems. Greater emotional reactivity was associated with more 6th grade internalizing and externalizing problems, controlling for 5th grade problems. No interactions between emotional reactivity and family interaction factors were significant.

Moderation by Gender

To examine whether the associations between family interaction and the 6th grade adjustment outcomes differed by child gender, moderation analyses were conducted using the dichotomous gender variable (0 = male, 1 = female).

Separately by family interaction variable. As seen in Table 11, there were significant main effects of child gender on externalizing problems and social competence in both the positive and negative family interaction models. Boys exhibited more externalizing problems compared with girls, whereas girls exhibited more social competence compared with boys. Although no significant gender interactions emerged in the negative family interaction model, two significant interactions emerged in the positive family interaction model. There was a significant Positive Interaction x Gender interaction predicting 6th grade externalizing problems (*B* = 2.32, *S.E.* = 1.03, β = .10, *p* = .03): positive interaction predicted fewer externalizing problems for boys (*B* = -1.50, *S.E.* = .93, β = -.12, *p* = .11) and more externalizing problems for girls (*B* = .81, *S.E.* = .50, β = .07, *p* = .11), although neither simple slope reached significance. Additionally, there was a significant Positive Interaction x Gender interaction on 6th grade social competence (*B* = -2.79, *S.E.* = 1.18, β = -.10, *p* = .02). As seen in Figure 3, more positive family interaction was associated with greater teacher-reported social competence in 6th grade for boys (*B* = 2.49, *S.E.* = .93, β = .17, *p* = .01), controlling for 5th grade social competence. For girls, there was no significant association between positive family interaction and teacher-rated social

competence in 6th grade (*B* = -.30, *S.E.* = .77, β = -.02, *p* = .70), and girls had relatively high social competence compared to boys overall (see Figure 3).

Both family interaction variables. As seen in Table 12, there were main effects of child gender on 6th grade externalizing and 6th grade social competence: boys exhibited more externalizing problems than girls and girls exhibiting more social competence compared to boys. There were no significant interactions between negative family interaction and gender, although there were two significant interactions between positive family interaction and gender. There was a Positive Interaction x Gender interaction on 6th grade internalizing (*B* = 2.45, *S.E.* = 1.41, β = .17, *p* = .03): positive family interaction predicted more teacher-reported 6th-grade internalizing problems (*B* = 1.82, *S.E.* = 1.04, β = .21, *p* = .07), while for boys positive interaction predicted fewer internalizing symptoms (*B* = -1.13, *S.E.* = 1.02, β = -.13, *p* = .26), although only in the case of the girls did the simple slope reach marginal significance. Additionally, as in the positive interaction-only model, there was a significant Positive Interaction x Gender interaction for 6th grade social competence (*B* = -6.20, *S.E.* = 2.58, β = -.19, *p* = .02). As seen in Figure 4, more positive family interaction was associated with greater teacher-reported social competence in 6th grade for boys (*B* = 3.51, *S.E.* = 1.78, β = .22, *p* = .05), controlling for 5th grade social competence. For girls, this association was non-significant (*B* = -.17, *S.E.* = .11, β = -.17, *p* = .13).

Models Including Parental Sensitivity

To address Question 3, models were re-tested with the inclusion of parental sensitivity. For those models in which there were significant effects of family interaction, the model was re-tested controlling for the effects of parental sensitivity on the 6th grade socio-emotional adjustment outcomes, as well as the covariance between parent-child relationship quality and family interaction. Models were tested separately for maternal and paternal sensitivity. Note that for all models tested, maternal sensitivity predicted 6th grade teacher-reported externalizing problems (both-factors model: *B* = -.52, *S.E.* = .20, = -.15, *p* = .003), such that children who had more sensitive mothers were reported by teachers to have fewer externalizing problems. No significant main effects of paternal sensitivity on 6th grade socio-emotional outcomes were found.

Main effect model. Compared to the model originally revealing main effects for negative family interaction on 6th grade externalizing and 6th grade social competence, the main effects for

negative family interaction were no longer significant when controlling for either maternal or paternal sensitivity (see Table 13 and Table 4 for comparison). In both models, parental sensitivity was significantly correlated with negative family interaction (maternal: β = -.21, p < .001; paternal: β = -.36, p < .001).

Moderation by school switch. In re-testing the positive family interaction model in which the association with 6th grade outcomes was moderated by school switch, the moderated associates did not remain significant when examining maternal and paternal sensitivity in the model (see Table 14).

Moderation by child gender. In re-testing the model examining positive family interaction alone, the Positive Interaction x Gender path to 6th grade social competence remained significant when controlling for both mother and father sensitivity (maternal sensitivity model: *B* = -2.77, *S.E.* = 1.18, β = -.09, p = .02; paternal sensitivity model: *B* = -2.94, *S.E.* = 1.25, β = -.09, p = .03). In both models, for boys there was a significant association between greater positive family interaction and greater teacher-reported 6th grade social competence (maternal sensitivity model: *B* = 2.40, *S.E.* = .92, β = .16, p = .01; paternal sensitivity model: *B* = 3.28, *S.E.* = 1.00, β = .15, p = .03). There was no significant association found between positive family interaction and social competence for girls (maternal sensitivity model: *B* = -.37, *S.E.* = .78, β = -.03, p = .64; paternal sensitivity model: *B* = -.56, *S.E.* = .87, β = -.03, p = .52). The Positive Interaction x Gender path to 6th grade externalizing also remained significant in the model controlling for maternal sensitivity, and marginally significant in the model controlling for paternal sensitivity (maternal sensitivity model: *B* = 2.24, *S.E.* = 1.03, β = .09, p = .03; paternal sensitivity model: *B* = -2.31, *S.E.* = 1.11, β = -.10, p = .05). In both models, for girls there was a marginally significant association between greater positive family interaction and greater teacher-reported 6th grade externalizing problems (maternal sensitivity model: *B* = .98, *S.E.* = .51, β = .08, p = .06; paternal sensitivity model: *B* = 1.02, S.E. = .54, β = .08, p = .06). No association was found for boys (maternal sensitivity model: *B* = -1.26, *S.E.* = .95, β = -.10, p = .19; paternal sensitivity model: *B* = -1.29, *S.E.* = 1.05, β = -.10, p = .23). In both models, parental sensitivity was significantly correlated with positive family interaction (maternal: β = .15, p = .003; paternal: β = .31, p < .001).

In re-testing the model with both family factors in the same model, the Positive Interaction x Gender path to 6th grade social competence remained significant when controlling

for both mother and father sensitivity (maternal sensitivity model: B = -6.10, $S.E.$ = 2.57, β = -.19, p = .02; paternal sensitivity model: B = -5.85, $S.E.$ = 2.63, β = -.18, p = .03). In both models, for boys there was a marginally significant association between greater positive family interaction and greater teacher-reported 6th grade social competence (maternal sensitivity model: B = 3.45, $S.E.$ = 1.77, β = .21, p = .05; paternal sensitivity model: B = 3.25, $S.E.$ = 1.79, β = .20, p = .07). There was no significant association found between positive family interaction and social competence for girls (maternal sensitivity model: B = -2.65, $S.E.$ = 1.74, β = -.16, p = .13; paternal sensitivity model: B = -2.60, $S.E.$ = 1.79, β = -.16, p = .15). The Positive Interaction x Gender path to 6th grade internalizing also remained significant in the model controlling for parental sensitivity (maternal sensitivity model: B = 2.92, $S.E.$ = 1.40, β = .17, p = .03; paternal sensitivity model: B = 2.78, $S.E.$ = 1.42, β = .16, p = .04). In both models, for girls there was a marginally significant association between greater positive family interaction and greater teacher-reported 6th grade internalizing problems (maternal sensitivity model: B = 1.80, $S.E.$ = 1.03, β = .21, p = .07; paternal sensitivity model: B = 1.77, $S.E.$ = 1.03, β = .21, p = .08). There was no such association found for boys (maternal sensitivity model: B = -1.13, $S.E.$ = 1.02, β = -.13, p = .26; paternal sensitivity model: B = -1.02, $S.E.$ = 1.03, β = -.12, p = .32). In the model, parental sensitivity was significantly correlated with positive family interaction (maternal: β = .17, p < .001; paternal: β = .32, p < .001), as well as negative family interaction (maternal: β = -.21, p < .001; paternal: β = -.35, p < .001).

Table 9

Parameter Estimates for Models Examining Child Emotional Reactivity as a Moderator of Family Interaction Quality as a Predictor of 6th Grade Adjustment Outcomes (N = 603), Separately for Positive and Negative Family Interaction Quality

Outcome	Model for Positive Family Interaction					Model for Negative Family Interaction				
Predictor	*B*	*S.E.*	β	*p*	R^2	*B*	*S.E.*	β	*p*	R^2
Interaction (INT)					.04*					.00
Child gender (0 = male)	.13	.06	.09	.03		-.03	.07	-.02	.71	
Mother educ	.05	.01	.16	< .001		.01	.00	.02	.03	
Emotional reactivity (ER)					.02					.02
Child gender	1.00	.35	.12	.003		1.00	.35	.12	.003	
Mother educ	-.13	.08	-.07	.08		-.13	.08	-.07	.08	
Internalizing (6th)					.08**					.07**
Child gender	.13	.43	.01	.76		.13	.43	.01	.77	
Mother educ	-.12	.10	-.05	.25		-.13	.10	-.06	.19	
Internalizing (5th)	.21	.04	.22	< .001		.19	.05	.20	< .001	
ER	.22	.09	.19	.01		.11	.05	.09	.02	
INT	-.28	.34	-.04	.41		.37	.27	.06	.17	
INT x ER	-.13	.08	-.08	.10		.04	.06	.03	.51	
Externalizing (6th)					.30***					.31***
Child gender	-2.11	.60	-.13	< .001		-2.13	.60	-.14	< .001	
Mother educ	-.46	.16	-.13	.002		-.48	.15	-.14	< .001	
Externalizing (5th)	.45	.07	.44	< .001		.45	.07	.44	< .001	
ER	.14	.12	.08	.22		.19	.07	.10	.01	
INT	-.17	.51	-.02	.74		.74	.36	.08	.04	
INT x ER	.07	.11	.03	.55		-.08	.07	-.04	.26	
Social competence (6th)					.29***					.30***
Child gender	3.95	.74	.21	< .001		4.04	.73	.21	< .001	
Mother educ	.23	.17	.06	.18		.29	.17	.07	.09	
Social competence (5th)	.42	.04	.41	< .001		.43	.04	.42	< .001	
ER	-.03	.15	-.02	.82		-.12	.09	-.05	.18	
INT	.97	.62	.07	.10		-.85	.39	-.07	.03	
INT x ER	-.12	.14	-.04	.39		.12	.09	.05	.17	

*$p < .05$, **$p < .01$, ***$p < .001$

Table 10

Parameter Estimates for Models Examining Child Emotional Reactivity as a Moderator of Family Interaction Quality as a Predictor of 6th Grade Adjustment Outcomes (N = 603), Both Family Interaction Quality Factors in Model

Outcome Predictor	*B*	*S.E.*	β	*p*	R^2
Positive interaction (POS)					.01
Child gender (0 = male)	.10	.06	.08	.08	
Mother educ	.02	.01	.07	.17	
Negative interaction (NEG)					.01
Child gender	-.11	.07	-.07	.10	
Mother educ	-.00	.01	-.01	.80	
Emotional reactivity (ER)					.02
Child gender	1.00	.35	.12	.003	
Mother educ	-.13	.08	-.07	.08	
Internalizing (6th)					.07**
Child gender	.13	.43	.01	.77	
Mother educ	-.13	.10	-.06	.18	
Internalizing (5th)	.20	.05	.21	< .001	
ER	.11	.07	.09	.10	
POS	.44	.90	.05	.63	
NEG	.42	.62	.06	.50	
POS x ER	.03	.19	.02	.87	
NEG x ER	.08	.12	.06	.49	
Externalizing (6th)					.31***
Child gender	-2.05	.60	-.13	< .001	
Mother educ	-.47	.16	-.14	.001	
Externalizing (5th)	.45	.07	.44	< .001	
ER	.11	.13	.06	.10	
POS	.96	1.63	.07	.55	
NEG	1.27	1.14	.13	.27	
POS x ER	.22	.34	.07	.52	
NEG x ER	.02	.23	.01	.93	
Social competence (6th)					.30***
Child gender	3.92	.74	.21	< .001	
Mother educ	.27	.17	.07	.11	
Social competence (5th)	.43	.04	.41	< .001	
ER	-.06	.14	-.03	.67	
POS	.13	1.58	.01	.94	
NEG	-.90	1.11	-.07	.42	
POS x ER	-.08	.37	-.02	.84	
NEG x ER	.16	.25	.06	.52	

** $p < .01$, *** $p < .001$

Table 11

Parameter Estimates for Models Examining Child Gender as a Moderator of Family Interaction Quality as a Predictor of 6th Grade Adjustment Outcomes, Separately for Positive and Negative Family Interaction Quality

Outcome	Model for Positive Family Interaction					Model for Negative Family Interaction				
Predictor	*B*	*S.E.*	β	*p*	R^2	*B*	*S.E.*	β	*p*	R^2
Interaction (INT)					.03*					.00
Child gender (0 = male)	.12	.06	.09	.04		-.10	.07	-.06	.17	
Mother educ	.04	.01	.15	.001		.00	.02	.01	.86	
Internalizing (6th)					.06*					.06*
Child gender	-.22	.68	-.02	.75		.25	.44	.02	.57	
Mother educ	-.14	.10	-.06	.16		-.15	.10	-.07	.13	
Internalizing (5th)	.21	.05	.22	< .001		.21	.05	.22	< .001	
INT	-.56	.58	-.02	.57		.38	.42	.06	.38	
INT x Gender	.67	.77	.04	.39		-.22	.59	-.02	.71	
Externalizing (6th)					.30***					.30***
Child gender	-3.45	1.11	-.22	.002		-1.83	.63	-.12	.003	
Mother educ	-.44	.16	-.13	.003		-.47	.16	-.14	.001	
Externalizing (5th)	.47	.06	.46	< .001		.47	.06	.46	< .001	
INT	-1.50	.93	-.12	.11		1.25	.78	.08	.11	
INT x Gender	2.32	1.03	.10	.03		-.81	.89	.04	.36	
Social competence (6th)					.30***					.30***
Child gender	5.79	1.29	.30	< .001		3.91	.77	.20	< .001	
Mother educ	.25	.17	.06	.15		.30	.17	.07	.08	
Social competence (5th)	.43	.04	.42	< .001		.44	.04	.42	< .001	
INT	2.49	.93	.17	.01		-1.64	.70	-.08	.02	
INT x Gender	-2.79	1.18	-.10	.02		1.27	.90	-.05	.16	

Note. Parameter estimates are from model where 0 = male, 1 = female.
* $p < .05$, *** $p < .001$

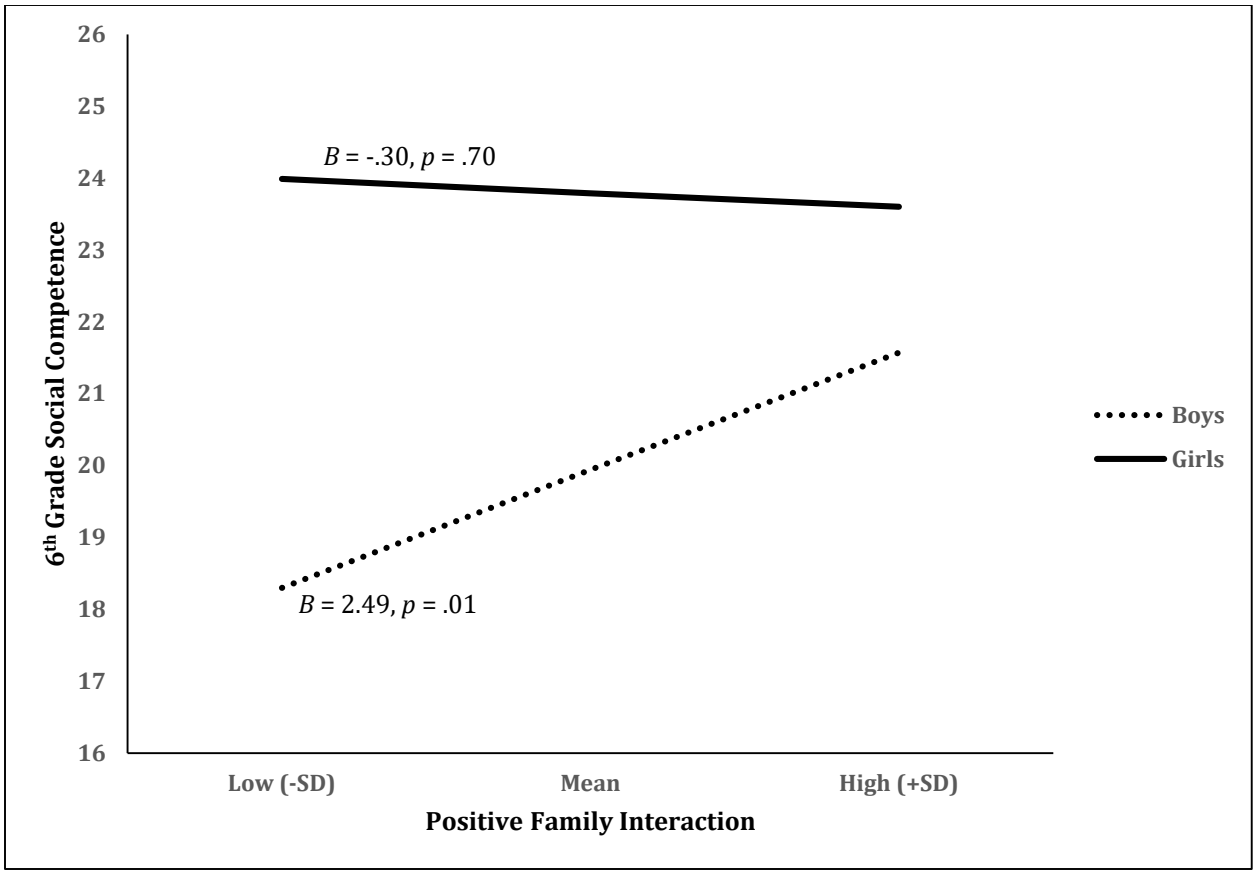

Figure 3. Moderating effect of gender on the association between positive family interaction quality and 6th grade teacher-rated social competence.

Table 12

Parameter Estimates for Models Examining Child Gender as a Moderator of Family Interaction Quality as a Predictor of 6th Grade Adjustment Outcomes, Both Family Interaction Quality Factors in Model

Outcome Predictor	*B*	*S.E.*	β	*p*	R^2
Positive interaction (POS)					.01
Child gender (0 = male)	.09	.06	.08	.09	
Mother educ	.02	.01	.07	.19	
Negative interaction (NEG)					.00
Child gender	-.11	.07	-.07	.12	
Mother educ	.00	.01	.00	.97	
Internalizing (6^{th})					.07*
Child gender	-.60	.74	-.06	.41	
Mother educ	-.16	.10	-.07	.10	
Internalizing (5^{th})	.21	.05	.22	< .001	
POS	-1.13	1.02	-.13	.26	
NEG	-.30	.74	-.05	.69	
POS x Gender	2.95	1.41	.17	.03	
NEG x Gender	1.47	1.01	.11	.14	
Externalizing (6^{th})					.31***
Child gender	-2.90	1.12	-.18	.01	
Mother educ	-.48	.16	-.14	.001	
Externalizing (5^{th})	.47	.06	.46	< .001	
POS	-1.55	2.17	-.12	.48	
NEG	.37	1.61	.04	.82	
POS x Gender	3.67	2.31	.14	.12	
NEG x Gender	1.23	1.76	.06	.49	
Social competence (6^{th})					.32***
Child gender	5.67	1.62	.30	< .001	
Mother educ	.30	.17	.07	.08	
Social competence (5^{th})	.43	.04	.42	< .001	
POS	3.51	1.78	.22	.05	
NEG	.32	1.31	.03	.81	
POS x Gender	-6.20	2.58	-.19	.02	
NEG x Gender	-2.21	1.93	-.09	.25	

Note. Parameter estimates are from model where 0 = male, 1 = female.
$^{*}p < .05$, $^{***}p < .001$

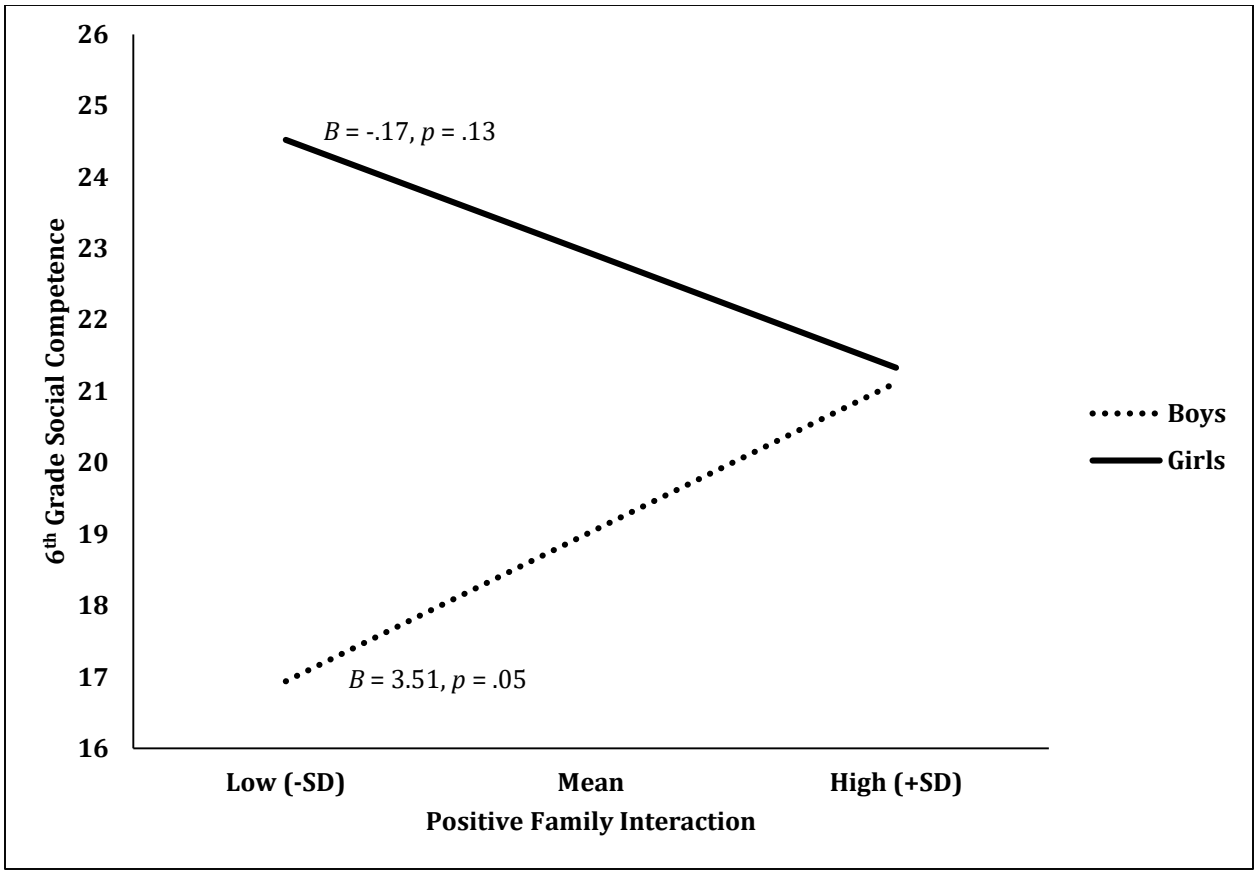

Figure 4. Moderating effect of gender on the association between positive family interaction quality and 6th grade teacher-rated social competence.

Table 13

Parameter Estimates for Models Predicting 6th Grade Socio-Emotional Adjustment from Negative Family Interaction Quality When Parental Sensitivity Included, Separately by Maternal and Paternal Sensitivity

Outcome	Maternal Sensitivity Included					Paternal Sensitivity Included				
Predictor	*B*	*S.E.*	β	*p*	R^2	*B*	*S.E*	β	*p*	R^2
Negative interaction (NEG)					.00					.00
Child gender (0 = male)	-.10	.07	-.06	.15		-.10	.07	-.06	.16	
Mother educ	.00	.01	.01	.91		.00	.02	.01	.87	
Parent sensitivity					.11***					.04**
Child gender	.57	.18	.13	.002		.01	.18	.00	.94	
Mother educ	.30	.04	.30	< .001		.20	.04	.21	< .001	
Internalizing (6th)					.06*					.06*
Child gender	.30	.44	.03	.49		.25	.43	.03	.56	
Mother educ	-.12	.10	-.06	.21		-.13	.10	-.06	.19	
Internalizing (5th)	.20	.05	.21	< .001		.20	.05	.21	< .001	
Parent sensitivity	-.10	.11	.05	.36		-.12	.10	-.05	.26	
NEG	.18	.32	.03	.57		.12	.31	.02	.71	
Externalizing (6th)					.32***					.30***
Child gender	-1.60	.59	-.10	.01		-1.83	.60	-.12	.002	
Mother educ	-.34	.15	-.10	.02		-.45	.16	-.13	.001	
Externalizing (5th)	.45	.06	.44	< .001		.46	.06	.46	< .001	
Parent sensitivity	-.51	.19	-.15	.003		-.13	.14	-.04	.36	
NEG	.52	.39	.05	.19		.64	.42	.02	.12	
Social competence (6th)					.31***					.30***
Child gender	3.74	.74	.20	< .001		3.89	.73	.20	< .001	
Mother educ	.23	.17	.06	.17		.27	.17	.07	.12	
Social competence (5th)	.42	.04	.42	< .001		.43	.04	.42	< .001	
Parent sensitivity	.31	.19	.07	.11		.22	.19	.05	.26	
NEG	-.77	.48	-.06	.11		-.68	.52	-.06	.19	

*$p < .05$, ***$p < .001$

Table 14

Parameter Estimates for Models Examining School Switch as a Moderator of Positive Family Interaction Quality as a Predictor of 6th Grade Adjustment Outcomes When Parental Sensitivity Included (N = 466), Separately by Maternal and Paternal Sensitivity

Outcome	Maternal Sensitivity Included					Paternal Sensitivity Included				
Predictor	*B*	*S.E.*	β	*p*	R^2	*B*	*S.E*	β	*p*	R^2
POS					.05					.04
Child gender	.14	.07	.10	.05		.13	.07	.10	.05	
Mother educ	.06	.17	.19	.70		.04	.03	.15	.16	
Parent sensitivity					.12*					.05*
Child gender	.54	.21	-.01	.90		-.09	.21	-.02	.65	
Mother educ	.31	.09	.01	.85		.22	.05	.22	<.001	
Internalizing (6th)					.06*					.06*
Child gender	.17	.49	.02	.73		.07	.48	.01	.89	
Mother educ	-.01	.12	-.01	.93		-.03	.12	-.01	.80	
Internalizing (5th)	.20	.05	.21	.05		.20	.05	.21	<.001	
Switch	.43	1.44	.04	.76		.56	.93	.05	.54	
Parent sensitivity	-.17	.12	-.08	.17		-.18	.12	-.08	.14	
POS	-.06	.47	-.01	.90		.11	.55	.01	.84	
POS x Switch	.20	1.04	.01	.85		.03	1.10	.00	.98	
Externalizing (6th)					.32***					.30***
Child gender	-1.95	.60	-.13	.001		-2.17	.62	-.14	<.001	
Mother educ	-.30	.18	-.09	.08		-.42	.18	-.12	.01	
Externalizing (5th)	.43	.07	.43	<.001		.45	.07	.45	<.001	
Switch	.34	1.32	-.16	.80		.31	1.18	.02	.79	
Parent sensitivity	-.53	.22	-.16	.01		-.17	.16	-.05	.26	
POS	-.16	.78	-.02	.84		-.14	.90	-.01	.88	
POS x Switch	-.20	1.12	-.01	.86		-.23	1.20	-.01	.85	
Social comp (6th)					.29***					.29***
Child gender	4.29	.87	.23	<.001		4.45	.84	.23	<.001	
Mother educ	.14	.22	.03	.53		.16	.21	.04	.44	
Social comp (5th)	.36	.05	.35	<.001		.36	.05	.35	<.001	
Switch	4.29	10.63	.22	.69		3.15	2.56	.16	.21	
Parent sensitivity	.25	.23	.06	.28		.43	.21	.10	.03	
POS	2.46	.80	.19	.01		2.17	1.05	.14	.07	
POS x Switch	-3.53	1.87	-.13	.17		-3.09	1.71	-.10	.11	

Note. Parameter estimates are from model with 0 = switch, 1 = no switch and 0 = male, 1 = female. POS = positive family interaction.

*$p < .05$, ***$p < .001$

Chapter Six: Discussion

Past research on family relationships and socio-emotional adjustment in early adolescence has tended to focus on dyadic or triadic parent-child relationship quality as a predictor of adjustment. Family systems theory suggests that the functioning of other levels of the family (e.g., interactions in groups larger than parent-child triad) may have important and distinct associations with development, and thus more research is needed to better elucidate these associations. Thus, the current study helped address a gap in the literature on early adolescence by examining the associations between the quality of family-level interactions and early adolescents' socio-emotional adjustment using a sample of two-parent families. The study examined the association between two dimensions of observed family interaction quality, positive interaction and negative interaction, and 6th grade socio-emotional adjustment, controlling for 5th grade adjustment. Socio-emotional adjustment was examined with three broad indicators of adjustment: internalizing problems, externalizing problems and social competence. The inclusion of a positive dimension of adjustment, social competence, extends research on socio-emotional adjustment and observed family interaction, as it has been more common in past literature to focus on emotional and behavioral problems. Structural equation modeling was used in analyses, allowing for more complex modeling of family interaction quality in analyses. Models were tested individually by family interaction quality (i.e., positive and negative) and with these family interaction factors in the same model. The latter set of models provided an opportunity to examine the unique contributions of each family factor on children's adjustment.

Further, the study extended the literature by examining possible moderators of the associations between family interaction quality and 6th grade adjustment, as it may be that the quality of family relationships matters more for some children and/or under particular circumstances. Family interaction quality to adjustment associations were tested to examine whether these associations differed based on: (a) having undergone a school switch between 5th and 6th grade, (b) the child's degree of emotional reactivity as reported by parents, and (c) child gender. Finally, I examined models with parental sensitivity included as predictors of adjustment to examine whether family-level interaction quality showed unique contributions to the child outcomes, distinct from those that dyadic-level family variables have on these outcomes. Those models in which significant family effects were found were re-tested with the

inclusion of parental sensitivity to examine the robustness of the findings for family-level effects. Below, I highlight and discuss the key findings that emerged from the study analyses.

Main Effects of Family Interaction on Socio-Emotional Adjustment

Only modest evidence of associations between family interaction quality and 6th grade socio-emotional adjustment emerged in main effects analyses. Negative family interaction quality was a significant predictor of some 6th grade socio-emotional adjustment outcomes when examining negative family interaction individually; no other significant main effects emerged. Nevertheless, the results from the negative family interaction-only model did support the hypothesis that negative family interaction in 5th grade would be associated with less socio-emotional adjustment (e.g., more externalizing, less social competence) in 6th grade, controlling for 5th grade adjustment. Namely, greater negative family interaction was found to be associated with greater 6th grade teacher-rated externalizing problems and was also associated with less 6th grade teacher-rated social competence as predicted. These findings support and add to the past findings that negative family interaction (e.g., conflict) predicts greater externalizing problems, both when examining triadic or larger family observations (Benson & Buehler, 2012; Richmond & Stocker, 2006) and self-report measures of family functioning (Bronstein et al., 1996; Bronstein, Fitzgerald, Briones, Pieniadz & D'Ari, 1993). The current findings further add to our knowledge of the associations between negative family interaction and positive adjustment outcomes, suggesting that negative family interaction may not only predict more problem behavior but also may be detrimental to the development of socially competent behavior.

On the other hand, family interaction quality, specifically the degree of negative family interaction, was not associated with more internalizing behavior as hypothesized. Such a result is somewhat at odds with past research, which has found associations between self-report measures of family functioning and internalizing symptoms, although notably these associations were found with depression specifically (e.g., Kelly et al., 2016; Kouros & Garber, 2014; Queen, Stewart, Ehrenreich-May, & Pincus, 2013), although other studies of observed functioning in the parent-child triad found functioning to be associated with general measures of internalizing as well (e.g., Cummings, Koss, & Davies, 2015; Lindahl, Bregman, & Malik, 2012). One possibility is that the measure of family interaction used in the current study accounts for this difference, as negative family interaction as measured here may be somewhat different than in past studies given that it was not simply a measure of negativity and conflict and it was observed

versus reported family functioning. Negative family-level interaction of the kind measured in this observational study could simply less associated with the development of internalizing problems than it is to externalizing problems (e.g., aggression) and social skills, although more research would be needed to understand why. Alternatively, the measure of internalizing used in this study could account for these differences. Although not uncommon in studies generally, the use of teacher ratings to assess internalizing symptoms in this study may partially account for the finding, as teachers may not accurately capture internalizing symptoms in the way that more observable behaviors such as aggression (part of externalizing) or social skills would be noted in the school context. Thus, these results could underestimate possible associations between negative family interaction and internalizing symptoms, and future research should continue to investigate these links.

Caution does need to be taken in drawing conclusions based on the negative family interaction results, as the significant associations between negative family interactions and 6th grade externalizing problems and social competence did not emerge when examining negative and positive family interaction together in the same model. In part, the lack of findings in the both-factors model likely is due to the high negative covariance/correlation between the two family interaction factors, suggesting that the unique variance in the child adjustment outcomes that was explained by negative family interaction was ameliorated when positive family interaction was taken into account. Results may also reflect this particular sample, in which there was a relatively low amount of negative family interaction compared to higher degrees of positive interaction, thus perhaps precluding the detection of more robust negative family interaction effects. It is notable that such a finding is somewhat at odds with Benson and Buehler's (2012) study examining triadic warmth and hostility together, which found that hostility remained a significant predictor when accounting for warmth. It is possible that family-level negative interaction somehow differs from triadic level negativity in its associations with development, or it could be an artifact of different interaction measurement methods (i.e., measure focused on hostility versus latent variable using more than one indicator of negative interaction).

No significant main effects of positive family interaction emerged in either the positive family interaction model or the both-factors model, counter to the hypothesis that more positive interaction in 5th grade would be associated with more positive socio-emotional adjustment (e.g.,

less externalizing and internalizing problems, more social competence). The lack of significant main effects for positive family interaction suggests that positive family interaction was not associated with 6th grade adjustment for children *overall*. However, the findings (discussed below) that positive interaction emerged as a significant predictor of adjustment in moderation analyses indicates that positive interaction may influence children differently based on individual characteristics or emerge as a significant predictor of adjustment under certain circumstances.

Moderation of Associations Between Family Interaction and Socio-Emotional Adjustment

More evidence emerged in moderation analyses of significant associations between family interaction quality and 6th grade socio-emotional adjustment. Several analyses, discussed in more detail below, suggested that the associations between family interaction and 6th grade socio-emotional adjustment are moderated by contextual (i.e., school switch) and some individual (i.e., child gender) factors. Notably, these moderated effects emerged specifically between moderators and positive family interaction, suggesting that positive family interaction in particular may make contributions to socio-emotional development under certain circumstances or in different ways for different groups of children. Below I discuss the moderation analyses in more detail.

School switch. Having undergone a school switch between the 5th and 6th grade year emerged as a significant moderator of the association between positive family interaction and social competence, although only in the positive interaction-only model. Specifically, positive family interaction emerged as a significant predictor of greater social competence only for those children who had undergone a school transition. Specifically, results suggest that coming from a family that is low on positive family interaction may be particularly detrimental to the social competence of children undergoing school transition, while children who come from families with greater positive interaction appear to benefit in regards to their social competence during this transition point. These findings partially support the hypothesis that the benefits of positive family interaction would be stronger for those children who underwent a school transition, although in this case positive family interaction emerged as a significant predictor of adjustment for children specifically under this contextual circumstance. Interestingly, no significant findings emerged when examining interactions between school switch and negative family interaction, which did not support the hypothesis that the detrimental effect of negative family relationships would be more pronounced for children who experienced a school transition. The

lack of such associations may suggest that negative family interaction is in general detrimental to socio-emotional adjustment, regardless of whether children undergo school transitions.

Results from the positive interaction model suggest that the degree of positive family interaction, characterized by warmth and positive engagement, may be particularly meaningful to social adjustment for children undergoing school transition between 5th and 6th grade. Specifically, it appears that coming from a family characterized by low levels of positive family interaction may be more detrimental to children undergoing a school transition and that children undergoing school transitions have better adjustment, at least in regards to their social competence, if they come from families characterized by more positive interaction. Families that are less positively engaged with one another may fail to provide children undergoing stressful transitions with the kind of support or skills development (e.g., social skills, self-regulation skills) they need in their new school environment. On the other hand, children may be less impacted by the degree of positive family interaction if they are not undergoing stressful school transitions.

Although the current study does not shed light on the underlying mechanisms of influence, several possibilities exist for why the degree of positive family interaction could be particularly meaningful for children undergoing a school transition. One possibility is that positive family interactions may help foster the kinds of social skills that are beneficial in the school environment, particularly skills that may be useful to managing a new school environment. Families who are positively engaged with one another may model or explicitly teach the kinds of group-oriented social skills that may be especially important to navigating school transition points, particularly during transitions into middle school which may require more navigation of new groups given changes in school structure (Eccles et al., 1993). It could also indicate that these families may be more engaged with one another so if issues arise during these transitions (e.g., potential for an increase in influence of deviant peers), these families are better able to help the child address these issues in ways that foster socially competent behavior. Thus, children who come from families characterized by more positive family interaction prior to undergoing socially stressful events such as school transition may be better equipped to handle these transitions successfully than children whose families are less warm and positively engaged with one another prior to this school transition. Alternatively, these families may continue to be better equipped to teach and/or handle issues that may arise for their children during the possibly

stressful transition, and thus these results could reflect possible difference in 6th grade family functioning contributing to 6th grade social competence as well.

While the above finding does suggest that, at least in the case of the positive interaction-only model, school transition acts as a moderator of the associations between family interaction and adjustment, the difficulty in dealing with missing data when creating interactions between latent variables and the dichotomous observed variable meant that these analyses were conducted using a limited sample of cases with data available for school switch (n = 466), rather than being conducted on data for the full sample (N = 605). The use of such listwise deletion has been criticized for the likelihood of biased parameter estimates (Schafer & Graham, 2002), and this needs to be taken into consideration in interpreting the results. Exploratory follow-up analyses to check these associations using full sample data were done using composite measures of family factors rather than latent variables for the estimates of family interaction quality (i.e., positive interaction composite = mean *positive affect and warmth*, *enthusiasm*, *detachment* [reverse coded]; negative interaction composite = mean *negativity and conflict*, *respect* [reverse coded], *chaos*). A significant interaction between school switch and positive interaction in predicting social competence was found, and mirrored the finding from the positive interaction-only model using the latent family variables. Notably, this effect emerged in the model with both family interaction quality variables, not just in the positive interaction-only model. While these analyses are obviously not identical to those using the latent variable in a number of respects, they do lend credence to the finding that positive interaction interacts with undergoing a school transition to predict social competence and that this finding was not specific to the subsample used in the test of the structural model.

The meaning of the above results, particularly the overall lack of interaction effects that emerged in the school switch moderation analyses, needs to be considered in light of the nature of the school switch data used in the current study. Heterogeneity in the school experiences represented in the two school switch groups used in analyses may be important to consider, as there were several school experiences represented in each group. For instance, the 'school switch' group encompassed some children who simply made a move to another school rather than only those children who moved to a middle school (although the majority did move to middle school), whereas the 'stay' group included children who were already in middle school (e.g., 5th-8th grade schools) or non-K-5 schools (e.g., 5th-6th grade schools). Results thus contrast

with studies that have more strictly examined the effects of school transition into typical middle school (i.e., 6th-8th grade) versus those who stayed in K-6 schools specifically. Unfortunately, the sample sizes for these more distinct groups (e.g., children who were already in middle schools, those who switched to another K-6 type school) were generally too small to be examined separately in analyses. Thus, the findings are best interpreted as representing the effects of family relationships on undergoing school transitions, rather than strictly the influence of family relationships on the transition to middle school specifically.

Child emotional reactivity. Although children's emotional reactivity showed a significant main effect on 6th grade internalizing and externalizing problems, no models tested found that child emotional reactivity moderated the associations between family interaction quality and 6th grade adjustment. Thus, the study did not offer support for either differential susceptibility or diathesis stress models, as no significant interactions emerged. Specifically, these results did not support the hypothesis that emotional reactivity acts as a susceptibility factor to the quality of family interactions in predicting early adolescent socio-emotional adjustment. These null results suggest that child emotional reactivity does not function as a factor that makes children more or less susceptible to the influences of family interaction quality on development. These results are in contrast to findings that suggest that emotional reactivity does act as a susceptibility factor to the observed quality of other, typically dyadic, family relationships when examined earlier in development (e.g., to the quality of parent-parent relationships, sibling relationships; e.g., Hentges, Davies, & Cicchetti, 2015; Morgan, Shaw, & Olino, 2012). One possibility is that these differences reflect age related differences in temperament and its associations with environmental quality, as it has been theorized that temperamental traits may act as susceptibility factors more clearly in infancy and early childhood in part due to greater developmental plasticity during these periods of development, but may not emerge as susceptibility factors in adolescence in part because temperament assessed later in development is likely to represent a mix of 'true' biologically-based temperament and environmental influences on expression of related behavior (i.e., may not reflect the biological sensitivity that underlies susceptibility as well as earlier in development; Belsky & Pluess, 2009; Rioux, Castellanos-Ryan, Parent, & Séguin, 2016). By early adolescence, parent reported emotional reactivity may simply not index the kind of biologically-based susceptibility to the environment that would emerge as a significant moderator of the association between family relationship

quality and adjustment, hence the lack of significant findings that emerged when examining parent-reported temperament as a moderator. On the other hand, there is some evidence that reported negative emotional reactivity did moderate associations between parent-reported family cohesion and youth-reported internalizing and externalizing problems in a study of early- to mid-adolescents (Rabinowitz, Osigwe, Drabick, & Reynolds, 2016), suggesting that other differences in the current study may account for the lack of significant associations. In the case of the Rabinowitz, Osigwe, Drabick and Reynolds (2016) study, it is notable that children reported on their own negative emotional reactivity, which may be a better reflection of their true reactivity than other-reported reactivity, and this could partially account for the difference in associations found in the current study. Additionally, the current study used observations of family interactions versus parent-reports of dimensions of family functioning, which could also be important difference in the significance of these associations.

Most significantly, the null findings likely reflect the focus on general emotional reactivity in this study, in contrast to past studies that have looked at negative emotional reactivity. The measure used in the current study, the Parent Report of Children's Reactions scale (Eisenberg, Fabes, Murphy, Maszk, Smith, & Karbon, 1995), includes questions that tap into both positive and negative emotional reactivity, and it is difficult given the question structure to dis-aggregate these two dimensions fully, which may have implications for the results. That is, children may be generally emotionally reactive, or could be reactive only positively or negatively – but the measure used in full does not adequately differentiate these dimensions, and thus could mask otherwise meaningful differences in one emotional dimension versus the other. Negative emotional reactivity in particular could be a possible risk factor for negative developmental outcomes more strongly than general emotional reactivity or positive emotional reactivity. Indeed, the majority of studies that have examined emotional reactivity (broadly) as a moderator of associations with family relationships to test hypotheses relevant to differential susceptibility have focused on measures of negative emotional reactivity or negative emotionality, as these are thought to best reflect the kind of heightened neurobiological sensitivity to the environment that could result in different developmental trajectories (for reviews, Bates, Schermerhorn, & Peterson, 2012; Belsky & Pluess, 2009; Ellis, Boyce, Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2011). It may be that the emotional reactivity measure used in this study simply was not well suited to fully addressing the substantive

question of the moderating effect of temperament-based characteristics on the associations between family interaction quality and early adolescent socio-emotional adjustment. Future research should continue to explore the associations between different dimensions of temperament and family functioning in predicting socio-emotional adjustment during early adolescence.

Child gender. Child gender emerged as a significant moderator of associations between positive family interaction quality and 6th grade socio-emotional adjustment. In contrast, child gender did not emerge as a moderator of associations between negative family interaction and adjustment. Consistent results were found for 6th grade social competence in particular: for boys, but not for girls, coming from families who had more positive family-level interaction predicted greater teacher-rated 6th grade social competence, controlling for 5th grade social competence. Results were consistent for models tested with positive family interaction only and positive and negative interaction quality examined in the same model, suggesting that the beneficial effect of positive family interaction for boys' social competence was robust when taking into account the effect of negative family interaction on adjustment. Notably, boys and girls in this sample did differ on their mean level social competence, with girls rated by teachers as more socially competent than boys on average. This could suggest that boys are at greater risk for engaging in less socially competent behaviors, and ameliorative environmental factors such as positive family-level relationships may therefore make stronger contributions to boys adjustment in this domain than for girls. The pattern of results did suggest that lacking these positive family interaction environments was particularly associated with less 6th grade social competence for boys, while the presence of these positive family environments was associated with better social competence. On the other hand girls did not appear to be impacted by the degree of positive family interaction, either because they were in general seen as more socially competent or because family interaction quality in particular does not impact them to the same degree in regards to social competence as it does for boys.

Positive family interaction may be particularly important for boys for a number of reasons, which could partially account for these findings. Given the nature of the skills assessed by the social competence measure used in the current study (e.g., cooperation, appropriate assertiveness and self-control), it may be that boys in particular benefit from the ways that positively engaged families model and potentially re-enforce more positive interaction norms

and behaviors during interactions (e.g., cooperating and learning to control oneself for larger group goals), as the gendered peer group norms (e.g., emphasis on aggression, dominance, less on cooperation; Leaper, 2013; Rose & Rudolph, 2006) that may be particularly salient for boys may not necessarily help them develop these types of social competence skills. Positive family interaction could also be an indicator of a family that is generally more engaged with one another and positively involved in the study child's life in beneficial ways and these features also have a positive influence on social competence. For instance, there is some evidence, albeit from reported measures of family functioning, that family cohesion and adaptability in early adolescence are associated with parental support and supervision behaviors (Henry, Robinson, Neal, & Huey, 2006; Houltberg, Henry, & Morris, 2012), so it is possible that these behaviors help account for the found associations between positive family interaction and social competence – and that these matter more for boys than for girls. That is, in positively engaged families, parents may be more involved in their children's lives in a way that improves social competence, such as preventing involvement with deviant peers and facilitating positive social experiences (Bornstein, Jager, & Steinberg, 2013). It is possible that early adolescent boy are at greater risk for involvement with peers who may influence them to exhibit less socially competent behaviors (Leaper, 2013), so positive family involvement may make a greater difference in preventing these negative peer influences from affecting their social competence-related adjustment. Future research should examine the associations that positive family interaction has to other aspects of family functioning to further elucidate the mechanisms of influence that account for found gender differences in the current study.

Contrary to hypothesized associations, no significant gender differences emerged for negative family interaction predicting internalizing or externalizing problems. However, there was some evidence of gender differences in these outcomes when examining positive family interaction quality. Gender moderated the association between positive interaction and 6th grade externalizing in the positive interaction-only model and 6th grade internalizing in the both-factors model, although in an unexpected direction for girls in both cases. In both cases, more positive family interaction predicted *more* externalizing or internalizing problems for girls, whereas for boys, more positive family interaction predicted less externalizing or internalizing problems. These results should be interpreted with caution, however, as in neither case did the simple slopes for positive interaction reach significance for either boys or girls, despite statistically

significant interaction terms. It is less clear, based on conceptual or theoretical reasons, why positive family interaction would have unexpected *positive* associations with 6th grade emotional and behavioral problems for girls in particular. One possible explanation is that the 'positive' dimension of these families are not always positive in effect because related, but unmeasured, aspects of family interaction or functioning could negatively influence girls in particular (e.g., teasing, which is often done in affectively positive manner; too much emphasis on family 'togetherness' over individual needs), as girls may be more attuned to the quality of their family relationships (Davies & Lindsay, 2004). It is also possible that associations between family relationship quality and peer relationships again impact these associations, albeit somewhat differently for girls. Popularity in early adolescence has been positively associated with self-reports of family expressiveness (i.e., more expressiveness, more popularity; Bronstein et al., 1996; Bronstein et al., 1993), so it is possible that the effects of popularity (or related peer constructs) on internalizing and externalizing problems could mediate these associations specifically for girls. That is, girls from more positive families may be more popular, but for a number of reasons associated with peer relationships this could also be associated with increases in emotional and/or behavior problems over time. It is also possible that these results reflect an artifact of the model testing, particularly the model with both family factors and the high degree of overlap in the association between these family factors. More research needs to be done to fully clarify these associations and confirm that these findings are genuine (e.g., not due to modeling or sample) before drawing conclusions about associations between positive family interaction and emotional and behavioral adjustment problems.

Inclusion of Parental Sensitivity in Models

To confirm that significant family interaction – adjustment associations were distinct from possible associations between parent-child relationship quality and socio-emotional adjustment, models were re-tested with the inclusion of parental sensitivity separately for maternal and paternal sensitivity. Only modest support emerged that family interaction quality remained a significant predictor of early adolescent adjustment when accounting for parental sensitivity. When either maternal or paternal sensitivity was added to the relevant models, significant main effects for negative family interaction did not remain significant, and the Positive Interaction x School Switch interaction also no longer remained significant. On the other hand, the Positive Interaction x Gender interactions remained significant in both models re-

tested (i.e., positive interaction-only and both-factors models). Results thus offer only partial support that positive, although not negative, family interaction contributes distinctly to children's development beyond any shared associations with parent-child relationship quality.

Given the inter-related nature of family relationships, it is perhaps not as surprising that stronger evidence of the distinctiveness of family-level interactions to adjustment outcomes did not emerge, although this is somewhat in contrast to past studies that found that self-reported family functioning (Dubois-Comtois & Moss, 2008), triadic interaction quality (Murphy, Boyd-Soisson, Jacobvitz, & Hazen, 2017), or family interaction (Richmond & Stocker, 2006) predicated adjustment beyond aspects of dyadic relationship quality. It is possible that the use of observed family interaction quality latent variables in the current study – namely, examining both positive and negative dimensions versus single measures of family functioning– could account for these differences. The lack of more robust evidence of the differences in influence of these systems could also be an artifact of examining inter-related relationship systems in the same model, specifically using observations of these interactions versus reports of system functioning. Family-level interaction and parent-child relationship quality are inter-related, given that family functioning (e.g., norms of interaction) influences the functioning of individual dyadic relationships in the family and the functioning in individual dyadic relationships in the family also influence higher-level family processes like family-level interaction quality. These overlapping features, particularly in terms of interaction norms, may be more pronounced when examining observational measures. Thus, examining these factors together may result in more overlapping variance when predicting socio-emotional adjustment outcomes than expected given their associations with one another, thus resulting in less unique variance to be predicted by family interaction quality or parental sensitivity. Relatedly, parent-child relationship quality and family interaction may overlap in their associations with adjustment due to similar underlying mechanisms of influence on adjustment outcomes. For instance, both could influence similar aspects of development such as relationship representations in terms of attachment (Dubois-Comtois & Moss, 2008), which may affect socio-emotional adjustment similarly. Negative family interaction in particular could reflect the influence of a similar detrimental factor on relationship quality (e.g., parental conflict), and thus accounting for both factors together may obscure individual variable associations, particularly if one factor has a stronger association with an outcome. It also could be that the quality of the parent-child relationship influenced the

quality of family interactions, so accounting for parent-child relationship quality accounts for these effects. Alternatively, this could simply indicate the relatively weak association that family interaction had with the adjustment outcomes in this sample, leading to easily obscured associations. In other samples and/or using other methods of assessing family interaction quality these effects could emerge more robustly.

Contributions and Implications

The current study makes several contributions to the literature on family-level relationship quality and early adolescent socio-emotional adjustment. First, the study was relatively novel in examining family-level interaction observationally. By utilizing observational measures of family interaction, the study adds to our knowledge of these associations beyond what we know from prior studies that relied upon single measure and/or self-report measures of family functioning. Such a strategy also allowed for a more complex analysis of the dimensions of family interaction. I did find that, although strongly associated, there are different dimensions of family interaction and that these did appear to have different associations with the 6th grade adjustment outcomes.

By examining positive family interaction as well as negative family interaction, the current study expanded our knowledge of this under-examined aspect of family-level relationships. Although positive aspects of family-level relationships (e.g., family warmth) have certainly been theorized to be present and important dimensions of family interaction, observational studies that have examined related constructs have been scarce (although see Richmond & Stocker, 2006; Rueter & Conger, 1995). The current study thus extends our knowledge of family interaction style, finding that family-level expressed positive affect and warmth towards one another, enthusiasm in engaging with each other during the activity and engagement are related, perhaps defining tapping into a 'positively engaged' aspect of family interaction. How this dimension of interaction relates to other features of family relationships, such as family cohesion, is unclear, but may have conceptual overlap given the involvement of degree and quality of engagement with one another was key to the observational construct as well. More research examining the associations between self-report measures and these kinds of observational measures of family interaction are warranted to examine these similarities, as this will allow for easier comparison of findings from self-report and observational studies of family functioning. Additionally, while more research about the associations between more positive

dimensions of family interaction is warranted, the current study points to the potential utility in continuing to explore this aspect of family relationships. Fostering positive relationships, not simply decreasing negative relationships, might be a useful area of intervention and should be considered in future research.

Findings further highlight the importance of studying potential moderators of the associations between family interaction quality and early adolescent adjustment, as results suggest that these factors are important in assessing these associations, at least for positive family interaction quality. Specifically, findings suggest that positive family interaction may be particularly important to adjustment to children differently based on individual characteristics (e.g., gender) or under certain circumstances in particular. Failure to consider important moderators of these associations may result in an underestimation of the importance of associations between family functioning and early adolescent adjustment. Future studies should continue to explore other possible moderators of associations between family functioning and early adolescent development.

Although few associations between negative family interaction and 6th grade socio-emotional outcomes emerged, the current study nonetheless adds to our knowledge about the topic of negative family-level interactions, at least indirectly. A key focus of past literature on the importance of negative family interactions has been on family conflict in particular (e.g., Buehler & Benson, 2012; Cummings, Koss, & Davies, 2015). The present study used a different operationalization of negative family interaction by looking at a general negative interaction factor, which included negativity and conflict but also included degree of respect for others and degree of interactional chaos. Substantively, that these indicators were associated suggests that other aspects of negative family interaction also likely vary with degree of family conflict and this may be important to consider in interpreting findings about negative family functioning influencing development. For instance, lack of family-level respect may vary with negativity and conflict and could be an additional or 'third' variable that may also be influencing associations between conflict and child outcomes. Although potentially informative to conceptualizing the meaning of negative family interaction effects, the lack of significant findings for negative family interaction in this study compared to past studies could be due to this difference in operationalization of negative family interaction. Alternatively, the relatively low average level of negative family interactions in this sample could also account for this lack

of findings, and studies with samples that include families who experience higher levels of negative interactions could find expected associations.

The lack of many findings for negative interaction could also be an artifact of the difference between observational versus self-report measures of negative family-level interactions. Self-report measures may better capture perceptions of family functioning, which themselves may be important in that they index feelings about difficulty in the family but may not be synonymous with actual negative interactions themselves (Kerig & Lindhal, 2001). Thus, studies that found significant associations for negative family relationships using self-report measures may be indexing the association between feeling like one comes from a negative family environment and adjustment. More research using observational measures is warranted to further investigate the associations between negative family-level interactions and early adolescent adjustment. This research should take care to consider what aspects of family interaction are measured, as well as the interactional context.

For both positive and negative family interaction, interpretation of the results should be done with a consideration of the specific task and context in which the family interactions took place. Although all interaction tasks will be informed by a family's general mode of interaction, specific tasks may better reflect certain domains of interaction. Planning a family vacation may tap into a specific domain of functioning and interaction, namely family event planning and problem solving capacities. Likely the task also elicits more positivity, enthusiasm and engagement among family members given that the task is planning an enjoyable group activity together. While perhaps beneficial to tapping into such aspects of family interaction, planning a family vacation may not, in general, elicit much negativity and conflict compared to other tasks used in past studies (e.g., conflict discussion tasks). While conflicts may arise during these tasks, the nature and level of conflict may not be particularly high or the kind that has strong detrimental effects on socio-emotional adjustment. This may be in contrast to the types of conflicts that naturally arise during everyday life, and thus may not accurately reflect the negative dimensions of family interaction as a result. The relatively low level of negativity and conflict in this sample suggests that indeed, the task did not elicit much of these types of interactions in most families compared to more positive types of interaction (e.g., positive affect and warmth, enthusiasm). Alternatively, it may be that coding of the observations themselves may contribute to the lack of much negative interaction being captured. The family observations

were coded using global ratings across the entirety of the interaction session. These types of holistic ratings may not capture relatively infrequent behaviors such as less intense conflicts with enough nuance to differentiate families on these behaviors. These sorts of considerations about task and coding should continue to be considered in designing future research to capture family-level interaction. Ideally, studies will have families engage in a variety of tasks that capture a broader range of behaviors, or capture them in naturalistic settings (e.g., family meal times), which are more likely to reflect the interaction quality in everyday life.

Additionally, the study contributed to the literature by including multiple adjustment outcomes, including a positive adjustment outcome: social competence. Past research has suggested that family functioning plays an important role in positive adjustment outcomes for early adolescents (Bronstein et al., 1996; Bronstein, Fitzgerald, Briones, Pieniadz & D'Ari, 1993; Crandall, Ghazarian, Day & Riley, 2015) although these have used self-reported family function measures. The study results suggest this is true for observational measures as well. Positive family interaction in particular showed robust associations with adjustment as a function of two of the three moderators examined (i.e., child gender and school switch), suggesting that positive family interaction may have benefits for certain children in the area of social skills. Boys may be at a risk for issues in regard to social skills given relative peer pressure to act out during this age period, which could interfere with the perception by teachers at least of the child's social competence. Children who switch schools also face challenges by having to navigate new group dynamics in the classroom and with peers in a new school setting, and their prior socialization related to group dynamics may make an important difference to their ability to adjust. Families who are more positive when interacting with one another may be better at facilitating and modeling more functional group dynamics that help children successfully adapt socially, and this may be particularly helpful for those children who might otherwise face challenges socially during this age period. Family interaction may tap into different aspects socialization and functioning than parent-child relationships may. Overall, the results suggest that it is beneficial to continue to examine positive dimensions of family interaction as well as examining positive measures of adjustment such as social competence.

Finally, although results suggest that family interaction may influence socio-emotional adjustment in 6th grade, some caution should be used in generalizing and interpreting these results. The data used to address these questions were from two-parent families who were

predominantly white and middle class, and thus it is unclear whether family interaction similarly influences socio-emotional adjustment for children from families with different family structures or demographic backgrounds. Theoretically, family-level interaction should be a distinct relationship dimension in all families regardless of structure, but there could still be important differences in interaction quality based on who is part of the family (e.g., nature of relationship to child, age of family members interacting). Differences could also exist in the quality of interaction in the family based on cultural norms, or the strength of associations could depend on as other factors e.g., neighborhood context) that influence the strength of family–adjustment associations for particular children who are more at risk for adjustment difficulties. Thus, future research needs to examine these questions in a more diverse sample of family structures.

Additionally, the study examined larger-family interactions, but not exclusively whole family interactions, which could have implications for the meaning of the results. Namely, it was unclear whether the interactions represented whole-family interaction or simply larger family interaction, even with a best approximation of this based on household size. Related to family interaction, the current study only examined certain aspects of family functioning, even at the interactional level. Past research has found that boundary issues (e.g., enmeshment) and alliance formation (e.g., mother-child alliances) are important to child development across middle childhood and early/mid adolescence (Johnson, 2010; Lindahl, Bregman, & Malik, 2012; Lindhal & Malik, 2011). However, the current study did not examine this element of family relationships, which could be important aspects to consider in assessing the influence of family-level relationships on early adolescent development.

Further, the current study only examined whether there were effects of family interaction on adjustment outcomes between 5th and 6th grade, and does not shed light on the mechanisms underlying these associations. Thus, it remains unclear what child-level (e.g., emotional, cognitive, self processes) or relational processes (e.g., use of family as support) underlie the associations between family functioning and socio-emotional adjustment. Continuing to explore the mechanisms underlying these associations will be important in future work to better understand these associations. Additionally, it is unclear whether the family interaction–adjustment associations reflect the influence of family interaction quality specifically when children are in 5th grade or whether these associations are due to the continuity of family interaction across this 5th and 6th grade time period. There is some evidence across middle

childhood and into early adolescence that family level of functioning is relatively stable (Pagani et al., 2008), so it is possible these associations are due to continuity in family interaction. However, given changes going on during early adolescence (e.g., puberty, school transition for some students), it seems as likely that some degree of change in relationship quality occurs as well, as families need to adapt to these changes as a whole. Future research should endeavor to understand whether and how family relationship quality differs across time, as these could also have important implications for children's development. Finally, adjustment was examined at only 5th and 6th grade, we know much less about how family-level interaction quality predicts trajectories of change in socio-emotional adjustment over longer developmental time periods. Future research should endeavor to examine this issue in more depth.

Limitations

Although the study contributes to the literature, several limitations of the study must be acknowledged. First, the sample was limited in several key ways, both due to the sampling of the NICHD families from which the subsample was drawn and due to selection criteria for the current subsample. The NICHD sample from which the subsample was drawn in general lacks much racial and socio-economic diversity, relative to national demographics. The selection of the subsample (i.e., two-parent families) further limited the diversity in the current study sample, and the majority of the current sample was white and middle class, thus limiting the generalizability of the study findings. Subsample selection was based on the ability to compare families more readily, particularly in allowing for an examination of family-level interaction above and beyond parent-child relationship quality. This was deemed easier if the interactions were of two-parent families, as the number of adults in the interaction would be consistent, and these families were more likely to have sensitivity data for both parents. However, it is possible that important differences in family interaction itself or the associations between family interaction quality and socio-emotional adjustment exist for other families with different family structures or other demographic characteristics, and thus future research needs to include a more diverse sample of families to better understand the influences of family interaction quality on early adolescent socio-emotional adjustment.

Second, the study was limited in using observational measures of family interaction taken from a single 10-minute observational session that involved planning a family vacation. Such a task may not be well suited to eliciting a range of family interactions (as discussed above), and

thus the conclusions that can be drawn from the results are more limited. Similarly, the use of holistic codes for the full session may not capture more subtle differences in family interaction quality, and may limit the conclusions that can be drawn from analyses with the data. Additionally, key pieces of information relevant to the family interaction session are missing due to data collection decisions, influencing the conclusions that can be drawn about the family-level relationship examined. Although the task was designed to capture and measure whole-family interaction, explicit data on whether all family members living in the home participated in the task was not collected. As discussed in the 'Participants' section, the best approximation of whether the interaction represented the whole family was comparing household member numbers to the individuals in the family interaction, although this clearly is not necessarily foolproof if families have more complex living arrangements. In the future, it would be best to explicitly collect such data.

Third, several limitations arouse in testing my moderation hypotheses. First, as discussed above, there were limitations to the available measure of emotional reactivity. Thus, it is somewhat difficult to make clear conclusions based on the results using this measure due to overlap in dimensions of emotional reactivity measured, and future research should use alternate measures to examine the associations between emotional reactivity or similar temperament measures (e.g., negative emotionality) and family interaction quality. Analyses using the school switch data were also limited because of data collection issues. Namely, no explicit information on school switch was collected; instead, this variable had to be estimated from school attendance data. This school data itself was incomplete, as no information on schools was collected for those students attending private schools. Thus, analyses were limited in their ability to include, and therefore generalize results to, those students who attended private school for both 5^{th} and 6^{th} grade years. Future studies interested in examining school switch should collect explicit measures of switch in schools to avoid such issues.

Fifth, the outcome measures used in the study were all teacher-reported evaluations of child adjustment. Although teacher reports are beneficial in giving insight into children's behavior from non-parent individuals and in non-family contexts (e.g., school setting), they can be limited. These measures may incompletely capture the level of adjustment the child was actually experiencing, as teachers may be not have opportunities to observe all relevant adjustment behaviors. In particular, internalizing symptoms may not be as obvious to teachers as

other behavioral issues such as aggression or poor social skills and thus may be under-reported. To address this limitation, future studies should therefore examine these questions about the influence of family interaction on adjustment using child-reported adjustment to more fully explore these associations.

Finally, analyses were limited in their ability to shed light on how family functioning predicts change in adjustment over time. Specifically, analyses were limited to controlling for earlier adjustment at 5th grade in predicting 6th grade adjustment. With adjustment assessed at only two time points, it was not possible to assess how family interaction predicts growth and change in these adjustment outcomes. Future research should consider this issue in design to better address the issue of long-term influences of family interaction quality on child outcomes. Additionally, family interaction data existed at only the 5th-grade time point, so it is unclear if associations that emerged represent the effect of 5th grade family interaction quality on the later 6th grade adjustment outcomes, or represent the effects of continued quality of family relationships on these adjustment outcomes. Thus, more research should endeavor to explore the change in family-level interaction over time, to explore whether this too has an important impact on socio-emotional adjustment as well.

Chapter Seven: Conclusion

The current study highlights the potential importance of examining associations between early adolescents' socio-emotional adjustment and family-level interaction quality. Results suggest that the quality of family-level interactions in the 5th grade contributes to early adolescent adjustment in the 6th grade even controlling for 5th grade adjustment, although the extent of this association differed by quality of interaction (i.e., positive or negative interaction). Importantly, the study added to our knowledge of such family–adjustment associations by using observational measures of family interaction quality, rather than relying on self-report measures of family functioning as has been common when examining family relationships. The current study also extended our knowledge of these associations by examining important moderators of these associations, as well as testing the robustness of the family–adjustment associations when considering parental sensitivity as an additional predictor of adjustment.

Notably, few results emerged for negative family interaction quality, somewhat in contrast to findings reported in past literature. These results may suggest that family-level negative interaction is less impactful than suggested by past literature, although differences in methodology between the current and past studies support the need for continued examination of these associations to clarify this result. More robust evidence emerged when examining positive dimensions of interaction quality in moderation analyses, suggesting that this under-examined aspect of family relationships is important for children's adjustment. Specifically, child gender and having switched schools between 5th and 6th grade appear to influence the type and quality of associations between positive interaction and adjustment. Interestingly, there was a particularly strong association between family interaction quality and social competence in multiple analyses, supporting the notion that continued effort should be put into assessing multiple dimensions of socio-emotional adjustment in early adolescence, beyond internalizing and externalizing problems. Although only modest evidence emerged that family interaction emerged a significant predictor of early adolescent adjustment when also examining parental sensitivity, results nevertheless suggest the continued utility in examining these family level effects as well. While there were a number of limitations to the current study, the study nonetheless adds to our knowledge of whether the quality of family relationships predicts early adolescent socio-emotional adjustment.

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